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ON THE NEW SYRUP OF THE IODIDE AND TINCTURE OF THE CHLORIDE OF IRON.

By Joseph P. Remington.

The so-called tasteless iron combinations, which have recently been brought to notice by J. L. A. Creuse, of New York, have attracted much attention of late, and an entire revolution in the manner of making a most useful class of preparations has been threatened.

The advantages claimed for the innovations are numerous: freedom from *nauseous* taste (they cannot certainly be called tasteless), ready solubility in water, non-liability to change in dispensing, little or no destructive action on the teeth, miscibility without decomposition with bark and other desirable tonic preparations.

Setting aside for the present the theories which may be brought forward to prove their composition (the rationale of new compounds often being mere collections of symbols twisted into a shape that will explain on *paper* a reaction), the first thoughts that occur to a practical pharmacist in connection with them, are:—

Can they thoroughly replace the old and disagreeable remedies that have been prescribed for years past?

Can desirable processes be devised, whereby every pharmacist may make in his own store the new preparations?

Is the claim for stability sustained by experience?

It is the intention of the writer to attempt to answer these questions.

First, in regard to replacing the old remedies. Iodide of iron has been used constantly since 1824, and it is regarded as one of the

very best alterative and tonic preparations; yet the objections to its use are numerous, and were it not for its intrinsic merit it would have slept long ago in an unhonored grave; it is always unpleasant to take, even when freshly prepared, and becomes more so as it gets older.

In practice, but few pharmacists prepare their own syrup; reliance is placed on the general market, and the results, of course, are variable. A syrup one week or two years old may be purchased, possessing various degrees of color and acridity (agreeing better, however, in the latter quality), and neither the patient nor physician are probably aware of the cause, and practitioners are frequently debarred from prescribing for delicate persons and children on account of the disturbance to the digestive organs.

The new syrup of the iodide of iron does, in the writer's opinion, remove the objection to the old preparation. It has fallen to my lot to make about twelve gallons of the improved syrup at various times, which has been dispensed, and has been used by physicians in their practice for the usual diseases where the old syrup was indicated.

It seems to answer well in scrofulous and syphilitic diseases, in obstinate skin affections, and as an internal remedy where morbid secretions of the glands exist, but particularly for delicate females and children of scrofulous habit requiring an alterative tonic. Its taste is pleasant, the teeth are not discolored and the digestive functions were not disturbed by its use in any of the cases that were reported. A formula for the preparation is subjoined, which is based on the researches of Creuse in this direction.

New Syrup of the Iodide of Iron.

Take of—

Re-sublimed iodine,	378·9 grains.
Iron wire (card teeth),	90 "
Distilled water,	2 fluid-ounces.
Citric acid (dry),	408 grains.
Potassium carbonate (pure),	475 " or q. s.

Weigh accurately 252·6 grains of the iodine, and place in a beaker or flask of at least four fluid-ounce capacity, then add to it the card teeth and half a fluid-ounce of distilled water, cover the beaker with a watch glass, and agitate occasionally until the liquid has acquired a green color and lost the smell of iodine (care should be taken about

this point; all the iodine should be in the state of a ferrous salt), filter the liquid from undissolved iron, rinse the iron with a small quantity of the distilled water, pour on the filter, and finally rinse the filter; now add to the filtrate the remaining 126·3 grains iodine, and allow it to dissolve; it forms a rich ruby red solution. Place 406 grains of the citric acid in a small evaporating dish, add one and a half fluid-ounces of distilled water, and apply heat until the acid dissolves and the liquid boils; without removing from the fire add, by small portions, sufficient potassium carbonate to neutralize, avoiding an excess; if a slight excess should happen to be present, correct it by adding the two grains citric acid reserved; now pour as much of this solution of potassium citrate while hot into the red solution as will change the color to a bright green, and make up the measure to twenty-six fluid-ounces with simple syrup. The finished syrup contains about five grains of the salt in each fluid-drachm, and the dose would be from one-half to one teaspoonful.

The new tincture of the chloride of iron can replace the old, with advantage, in most cases where the tonic effects are alone desired, without any styptic action.

New Tincture of the Chloride of Iron.

Liq. ferri chloridi, U.S.P., . .	1 fluid-ounce.
Citric acid, ...	544 grains.
Sodium carbonate, ...	1000 " or q. s.
Water (distilled), ...	1 fluid-ounce.
Alcohol, ...	a sufficient quantity.

Dissolve the citric acid in the distilled water, and heat to the boiling point, gradually adding the sodium carbonate until the acid is saturated (the quantity varies with the amount of moisture present in either), mix with the iron solution, which will now acquire a beautiful green color, and make up the measure to four fluid-ounces with alcohol.

One of the strongest points in favor of this series of preparations is that they can be made to offer a great variety of desirable combinations. The finished green solution of iodide of iron may be evaporated at a low heat, and, as suggested, a salt formed which can readily be made into pills of three grains each, and, of course, requiring no insoluble coating to protect them; it may be dissolved in water in almost any quantity, forming a simple solution, or in syrup to form

a syrup of the iodide of iron of any required strength. It may be administered in combination with compound tincture of cinchona and compound tincture of gentian, or it may really, *when added*, put some virtue in the numerous tonic elixirs that are being prescribed so largely throughout the country.

A formula is appended for an elixir which has acquired some sale in this city. The writer does not wish to be considered as endorsing it, however.

Elixir of Gentian with Chloride of Iron.

Tincture of chloride of iron (new) . . .	6 fluid-drachms.
Tincture of cardamom, ...	½ fluid-ounce.
Fluid extract of gentian, ...	3 fluid-drachms.
Alcohol, ...	2 fluid-ounces.
Oil of cinnamon (true), ...	1 drop.
" coriander (fresh)	1 drop.
" anise, ...	1 drop.
" orange, ...	3 drops.
Simple syrup, ...	3 fluid-ounces.

Water, sufficient to make 16 fluid-ounces.

Dissolve the oils in the alcohol, and having mixed the other ingredients together, incorporate all thoroughly, adding sufficient water to make one pint, and filter. Dose: A dessertspoonful. This preparation contains five minims tincture of the chloride of iron in each dose; enough gentian is present to flavor the elixir somewhat, and give it part of a name, and not enough to injure the greatest desideratum—a pleasant taste.

ON LACTIC ACID.

By Charles Rice.

The quality of lactic acid of commerce, has, during the last few years, undergone a decided improvement, owing to an increased demand and to better care in its preparation. While it was formerly no uncommon occurrence to obtain a highly colored, ropy and opalescent acid, sometimes of a strong butyraceous odor, and evidently of considerable age, we now generally get a good article at about half the former price. The extensive and constantly increasing use of lactates and lactophosphates has been the main cause to bring about this result. But even now we occasionally meet with an acid which,

though in appearance quite unimpeachable, yet does not fulfil all the requirements which are demanded by critical pharmacy.

Our market is supplied with lactic acid from Europe, chiefly, if not exclusively, from Germany; although attempts have been made to manufacture it in this country, yet the greater outlay for material, wages, etc., has made it impossible for our manufacturers to compete with those abroad. Being therefore dependent upon foreign makers, it becomes so much more our duty to watch its quality, and to reject any which does not come up to the standard fixed by our Pharmacopœia.

Some time ago, while engaged in converting some lactic into oxalic acid by means of nitric acid, I noticed, after neutralization of the solution with ammonia, a small quantity of a white precipitate, which was found, on examination, to be oxalate of lime; and on examining the remainder of the same lactic acid, the presence of lime was unmistakably established. Unfortunately, the bottle had been deprived of its original label, so that its source could not with certainty be determined, but the result arrived at led me to reserve a few samples of different lots, in order to ascertain their purity and comparative strength.

Before stating the results of my investigation, I wish to give, side by side, the definition and remarks of the United States and German Pharmacopœias:

U. S. Pharmacopœia.	*German Pharmacopœia.*
A syrupy, nearly transparent liquid, of a pale wine color, having a slight bland odor and a very sour taste. Its sp. gr. is 1·212.	A syrupy, colorless or yellowish, odorless and acid liquid, of the sp. gr. 1·24. Is charred at a strong heat, burns with a bright flame, and is volatile without residue.
It unites in all proportions with water, alcohol and ether.	Soluble in water, alcohol and also in ether.
	Mixed with solution of permanganate of potassium, and gently heated, it diffuses the odor of aldehyde.
It is not precipitated by solution of acetate of lead or of oxalate of ammonium, and when neutralized with ammonia, affords no precipitate with hydrosulphuric acid.	When diluted with water, it is not made turbid by chloride of barium, oxalate of ammonium, nitrate of silver or hydrosulphuric acid solution.
When gently heated, it yields no odor of acetic or butyric acids. 90 grains of lactic acid are neutralized by not less than 75 grains of bicarbonate of potassium. When treated with a caustic alkali in excess, the color is not materially deepened.	When gently heated, it should yield no odor of acetic or butyric acids.

The spec. grav. of pure monohydrated lactic acid is 1·245 at 20° C., or 1·248 at 15° C. It is very frequently quoted in text-books erroneously as having a spec. grav. of 1 215 at 20° C. (*f. i. Kekulé, Lehrbuch der organischen Chemie*, i, p. 748. Fownes, Am. ed. 1870, p. 646, etc.) The relative strength of the pure acid and those of the German and U. S. Pharmacopœias may be seen in the following table:

1 eq. or 90 parts of	Saturate of $KO,HO,2CO_2$.	Per cent. of real acid.
$HO,C_6H_5O_5$	100·1 (K = 39·1)	100 per cent.
Germ. Ph. acid.	97·97	97 "
U. S. Ph. acid.	75	74·88 "

The samples which I examined were the following:

1. Merck's acid, bought 1872, of a light yellow color, is a little ropy, has scarcely any odor, and is free from traceable impurities.

2. Merck's acid, bought 1873, of a faint yellow color, is very clear, almost odorless and pure.

3. Trommsdorf's acid (1873) is perfectly colorless, brilliant, of a faint ethereal odor, and pure.

4. Gehe & Co.'s acid (1873) is of a straw color, and has a slight butyraceous smell; otherwise pure.

5. Marquart's acid (1870) is quite yellow, rather thin, has considerable odor, but is otherwise apparently pure.

6. Marquart's acid (1871) is faintly yellow, a little thicker than the other and almost odorless; pure.

The assay was made volumetrically by standard solution of soda, in each case upon three separate weighed portions, and the figures given below are the mean of three assays. And here I would remark that, in weighing the lactic acid for the purpose of assay or analysis, or whenever great accuracy is required, it is absolutely necessary to guard against its abstracting any moisture from the atmosphere. In this respect it is as hygroscopic as sulphuric acid. It should always be weighed by the method of "subtraction." If a small portion is required to be weighed, introduce a corresponding quantity into a vial provided with a well ground stopper, taking care not to get any on the neck or rim, and weigh; pour out a quantity deemed to be sufficient, replace the stopper immediately, and slip over the neck a rubber cap, which was previously weighed, together with the vial and acid (an unperforated, well-cleaned rubber nipple answers well), and

reweigh; the difference is the amount of lactic acid poured out. Without some such precaution, the small drop of acid adhering to the rim, after pouring out, would rapidly abstract enough moisture from the air to make it troublesome to follow the increase with a delicate balance.

The results of the assay show that nearly all the samples come up to the standard fixed by the U. S. Pharmacopœia. Only the last two samples are short, but in view of the good reputation which Marquart's preparations generally bear, I am inclined to believe that this is owing to the date of the acid, which was made at a time when there was much less demand for it. I did not succeed in obtaining any of his recent acid.

The following table, containing the results of the assay, explains itself:

	Grammes.	Neutralize NaO.	Corresponding to $C_6 H_6 O_6$.	90 pts. neutralize of $KO,HO,2CO_2$.	Percentage of $C_6 H_6 O_6$.
Merck's (1872).....	4·6201	1·1767	3·4162	74·01 pts.	73·93
" (1873).....	5·2629	1·3646	3·9617	75·31 "	75·23
Trommsdorf (1873)...	6·1233	1·6119	4·6797	76·49 "	76·41
Gehe & Co. (1873).....	4·4424	1·1616	3·3724	75·99 "	75·91
Marquart's (1870).....	3·5920	0·8429	2·4471	68·19 "	68·12
" (1871).....	2·4907	0·6013	1·7457	70·16 "	70·09

New York, August 15, 1873.

UNGUENTUM BENZOINI.

(U. S. Ph. 1870.)

By H. M. Wilder.

In *Medical News and Library*, August, 1873, p. 129, the Editor complains of the above ointment as made according to the U. S. Pharmacopœia of 1870, and cautions against its use as being too irritant. He advocates a return to the old method, by digesting the lard with benzoin and straining, as giving an entirely bland ointment.

Permit me to suggest a slight modification of the officinal process, which I have used ever since I began to make it with the tincture. It happened to me, as to everybody, that the resin separated as soon

as all the alcohol was evaporated, notwithstanding diligent stirring. I heated the ointment again *and strained.* It has a nearly white color and the odor of benzoin to perfection, and I never yet heard any complaint as to its being in the least irritating.

Hence the officinal formula might be altered so as to read: . . . "and, when the alcohol has entirely evaporated, strain, and stir occasionally while cooling."

When this first happened to me, I asked a colleague as to his experience; he told me that he obviated the difficulty by not allowing all the alcohol to evaporate; this would make it possible to get a homogeneous ointment. Probably the irritating property is due to the separation of the resin.

Philadelphia, August 6, 1873.

FORMULA FOR TINCTURA VALERIANÆ.

By Charles C. Patterson.

℞.	Valerian in fine powder, ...	℥ij.
	Water, ...	℥viij.
	Glycerin, Bower's, ...	℥iv.
	Diluted alcohol, ...	℥iv, or sufficient.
	Magnesium carbonate, ...	℥ss.

Moisten the valerian with 1 oz. diluted alcohol, pack it firmly in a glass funnel, pour on diluted alcohol until 4 oz. are obtained; set this aside. Now mix the glycerin and water and pour it on the valerian; when all has passed mix it with the reserved tincture and triturate it with the magnesia thoroughly and filter. The result is a fine dark tincture with no sediment after long standing. The above formula will suit for all tinctures that produce sediments, and, further, it gives a pleasant taste.

St. Clairsville, Ohio, Aug. 6, 1873.

[Note by the Editor.—If color alone was a sure criterion of the excellency of a pharmaceutical preparation, it would be easy enough to obtain tinctures, etc., by employing a menstruum containing much water or sufficient glycerin, which are sure to dissolve the dark colored so-called extractive constituents contained in most of the officinal drugs. On a critical examination, however, it will be found that the alcoholic strength of most tinctures might, with great propriety, be considerably increased, perhaps at the expense of the deep color, but

certainly to the advantage of the truly medicinal principles, the solution and preservation of which is the object of that class of preparations denominated tinctures. We believe that the alcohol in the tinctures of the U. S. Pharmacopœia is weaker than that ordered by any other pharmacopœia, and that fact alone should invite to comparative experiments, not with the view of ascertaining the amount of extract dissolved, but to determine the percentage of the definite active principles taken up by the different menstrua.]

REACTIONS OF SAPONIN.*

By Dr. Hermann Koehler.

1. Saponin yields with water an opalescent solution, foaming like soap solution; it is insoluble in ether, but soluble in petroleum ether, benzin, chloroform, alcohol and amylic alcohol.

2. Concentrated sulphuric acid yields with it a carmine red, faintly brownish solution, which becomes violet blue on the margin after about fifteen minutes.

3. The addition of bichromate of potassium changes this color to dirty green.

4. Saponin dissolves readily and completely in diluted and concentrated nitric acid with a yellow color.

5. The addition of bichromate to this solution produces no change.

6. On boiling saponin with concentrated phosphoric acid, a characteristic odor or coloration is not produced.

7. Bichromate, added after the phosphoric acid, produces no change.

8. Evaporated with muriatic acid, saponin yields a gray jelly; bichromate merely darkens the liquid.

9. Saponin gives with acetic acid, with difficulty, a colorless solution, in which no change is produced by bichromate.

10. Saponin is split, like other glucosides, by dilute acids.

11. Ammonia water dissolves saponin in the cold, yielding a foaming solution, from which acetic acid reprecipitates saponin.

12. Caustic soda dissolves saponin, but the solution is less clear and foams like soap solution. Acetic acid reprecipitates it.

13. Potassa behaves precisely like ammonia and soda.

* Die lokale Anæsthesirung durch Saponin; Halle, 1873. Translated from Neues Jahrbuch für Pharmacie, 1873, June.

14. A similar behavior have the carbonates of the alkalies.

15. Bicarbonates of the alkalies have an analogous behavior.

16. Tincture of galls produces in solutions of saponin a whitish flocculent turbidity, which disappears on boiling.

17. A similar whitish turbidity is obtained with ferridcyanide and with sulphocyanide of potassium.

18. Ferrocyanide of potassium does not alter the solution of saponin.

19. Iodide of potassium,

20. Bichromate of potassium, and

21. Picric acid produce no change in solutions of saponin.

22. Hydrate of barium yields a white precipitate, which is insoluble on boiling, and cakes together.

23. Subacetate of lead causes a white voluminous precipitate, caking on boiling.

24. Saponin separates mere traces of suboxide of copper from alkaline copper solution; pure sulphate of copper is not affected.

25. Acetate of zinc,
26. Ferric chloride,
27. Arsenious acid,

} produce in solutions of saponin white precipitates, which do not disappear on boiling.

28. On boiling saponin with solution of nitrate of silver, the latter is slowly reduced.

29. Chloride of gold, and

30. Corrosive sublimate give no reaction with saponin. M.

GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

On the Color of Tincture of Litmus in Yellow Sodium Light.—L. D'Henry has observed that the yellow-colored light produced by a Bunsen burner with table salt, causes red tincture of litmus to appear colorless, while the blue litmus tincture has a black and ink-like appearance. This difference in the color is so marked that he considers it by far easier for the chemist to effect exact neutralisations at night or in a dark chamber, than by daylight. Even dark-colored syrups may thus be neutralized, without diluting them, the point of saturation being very readily observed, notwithstanding the coloration of the liquid.—*Pharm. Cent. Halle*, 1873, *No.* 27, from *Polyt. Notizbl.*

Detection of Fuchsin in Fruit Essences.—C. Puscher recommends to dip a woolen or silken thread into the essence or syrup, the coloration from real fruit juice is afterwards easily washed out with water, while fuchsin, if present, dyes wool and silk of a rose color.—*Ibid. No.* 28, from *Ibid.*

Detection of a Falsification of Milk or Cream with Starch.—Hager refers to his former observation,* that the lacto-protein globules have the property of rapidly combining with iodine, and of decolorizing the solution of the latter. If the milk has been sophisticated with starch, solution of iodine will react upon the latter only after the milk has been entirely saturated with iodine, when the characteristic blue coloration will appear on the further addition of this reagent.—*Ibid. No.* 29.

Powdered Gum Arabic.—The well-known fact, that finely-dusted gum arabic is not so well adapted for oil emulsions as the sanded powder, is explained by Hager as follows: To obtain a dusted powder it is requisite that the gum should be thoroughly dried at an elevated temperature, so as to lose almost ten per cent. of its natural humidity; after such an exposure the gum has been altered to such an extent that it will now reduce alkaline copper solution at a moderate heat, and does not dissolve rapidly enough in water. Gum, to obtain a sanded powder, should be dried at about 30° C. (86° F.), until the pieces have lost 2, or not over 2.5 per cent. of moisture.—*Ibid.*

French Putty, discovered by Rubau of Paris, is prepared as follows: 7 ℔ of linseed oil are boiled for about two hours with 4 ℔ of brown umber, after which 2 oz. of finely cut wax are added; the mixture is removed from the fire, and 5½ ℔ prepared chalk and 11 ℔ of white lead are well incorporated This putty is said to be very durable, and can be used on frames without oiling them previously.—*Ibid.* from *Polyt. Notizbl.*

Rapid Filtration.—A simple contrivance, acting upon the same principle as Bunsen's filter, has been proposed by E. Fleischer. A wide-mouthed bottle is closed with a rubber cork, twice perforated; into one of the perforations the funnel is fitted, while a short glass tube, bent at a right angle, is inserted into the other, and lengthened

* American Journal of Pharmacy, 1869, p. 405.

by means of a piece of rubber tubing with spring clamp attached. The filter is capped with a small filter, then inserted and well moistened so as to rest against the funnel; afterwards, the liquid to be filtered is poured upon it, and the air in the receiving bottle rarified by sucking through the rubber tubing, which is then closed by the clamp.—*Chem. Cent. Blatt.* 1873, *No.* 23, from *Journal f. prakt. Chemie.*

Couch Grass, (Triticum repens, Lin.)—Dr. H. Müller corrects a statement made by Ludwig and himself last year* to this effect, that the rhizome of the grass named contains only one kind of sugar—fruit sugar—and no dextrose. Four samples of the rhizome yielded him the following amounts of levulose: 2.45, 2.70, 2.81 and 3.33 per cent. After preparing the extract of *Triticum repens* during warm weather, lactic acid is found in it, which, however, does not pre-exist in the rhizome, but is formed in consequence of fermentation. The peculiar gum mentioned in the former paper was, by further experiments, ascertained to be a peculiar principle, named triticin, which resembles inulin in its optical behavior and in its transformation into levulose by combining with water. It is prepared by exhausting the rhizome with 25 per cent. alcohol, precipitating with subacetate of lead, freeing the filtrate from lead by sulphuretted hydrogen, evaporating to a syrupy consistence and precipitating by several volumes of alcohol. The precipitate is redissolved in water, purified by subacetate with some carbonate of lead and again precipitated by alcohol. This process is repeated several times, until the aqueous solution of triticin ceases to be rendered turbid by the lead solution; it is then purified by animal charcoal, and finally by dialysis.—*Archiv d. Pharm.* 1873, *June.*

Behavior of some Alkaloids to Sugar and Sulphuric Acid.—R. Schneider describes a series of experiments. If a few milligrams of morphia are mixed with six or eight times the quantity of sugar, and one drop of concentrated sulphuric acid be added, the mixture becomes at once purplish red, and passes after fifteen or thirty minutes through violet blue, dirty blue green into dirty yellow. Water added to the purple solution causes its rapid decolorization. If milk sugar be used instead of cane sugar, the coloration is much fainter and pale rose-colored. One-tenth of a milligram gives an intense

* See American Journal of Pharmacy, 1872, p. 353.

reaction; it is still distinct with one-hundredth of a milligram, but does not last long. Codeia has a similar behavior, needing, however, a less concentrated acid; the two alkaloids are distinguished by chloroform, which dissolves codeia from alkaline liquids. The other opium and the cinchona alkaloids, as well as strychnia and brucia, show no characteristic reaction, but, like pure sugar, merely give a brown color, except quinia, which gives a greenish yellow coloration and a more intense fluorescence. A mixture of quinia and morphia behaves like pure morphia. Atropia, colchicia, emetia and picrotoxin produce no peculiar effect. Aconitia, with sugar solution and concentrated sulphuric acid, gives a nice rose red coloration on the margin, changing rapidly into dirty violet and brown.—*Ibid.* from *Poggend. Annalen.*

Dried Meat for Medicinal Purposes is prepared by Dannecy of Bordeaux by cutting fresh meat finely, spreading upon muslin, drying rapidly in a current of air and rubbing into a brown powder, which is almost inodorous, and has a slightly saline taste.* It is readily taken by patients, spread upon bread, or a teaspoonful of it mixed with a cupful of broth or soup, or by children, if baked into biscuits.—*Ibid.* from *Bullet. Génér. de Thérap.* lxxxii.

Impurity in Corrosive Sublimate.—Bultot of Liége met with corrosive sublimate which, on dissolving in water, ether and alcohol, left a yellow residue, while the solutions in the last two solvents had a reddish color. Further examination showed that the salt had most likely been made from the residuary liquids employed in the manufacture of anilin colors.—*Journ. de Pharm. d'Anvers*, 1873, *June*, from *Archives Médicales.*

Glycerite of Lime used in Burns is said by De Breyne to soothe the pain and to prevent inflammation or diminish its intensity; it is prepared from recently slaked lime, one part; glycerin, fifty parts; chlorinated hydrochloric ether, one part.—*L' Union Pharmac.* 1873, *June.*

The Toxical Effects of Iodide of Tetramethylammonium and Tetra-

* This process has been used by the Hudson's Bay Company more than twenty years ago (See American Journal of Pharmacy, 1853, p. 225), and a similar process was patented in England in 1866 to Dr. A. H. Hassall (See American Journ. Pharmacy, 1867, p. 445.—Editor Amer. Journ. Pharm.

mylammonium have been proven by Rabuteau by injecting their solutions subcutaneously. His results are, that they paralyze the extremities of the motor nerves, and that they act on the muscular contractility and sensibility similar to curare.—*Journ. de Pharm. et de Chim.* 1873, *July.*

TINCTURE OF KINO.

By R. Rother.

For what object the pharmacopœia incorporates such a multiplicity of simple astringents, is only a parallel question that can be advanced on numerous other incomprehensible and probably unanswerable positions held by the pharmacopœia.

Whatever the special merits of catechu, kino, nutgall, rhatany, cranesbill, blackberry, logwood and pomegranate fruit rind may be, is easily summed up in the individual belief of this and that practitioner. But that any of these bodies should have peculiar medicinal virtues not possessed by the others is only a finely drawn hypercritical assumption, based mainly on whimsical favoritism at random conferred, but unsupported by therapeutical difference of quality, in the object of choice.

The tinctures of catechu, kino, nutgall and rhatany are officinal, together with a syrup of blackberry, syrup of rhatany and fluid extracts of blackberry, geranium and rhatany. Now either of these astringents is fully capable of replacing any of the rest. They owe their astringency in every case to the presence of some variety of tannin, the only characteristic property of which is identical to the peculiar astringent property of pure tannin. Consequently, pure tannin, or nutgall, its source, is upon reasonable supposition superior as a pure vegetable astringent to the other often doubtful and frequently unreliable substitutes, in the shape of catechu, kino, etc.

However, tincture of nutgall is not much employed for internal use, but a syrup of nutgall, not officinal, but much used in many localities, is highly prized. Catechu is a cheap substance, and when of good quality, is rich in tannin; yet it is not so popular as kino, which, somewhat stronger in tannin, though very unstable in solution, has heretofore been very expensive, and consequently subject to adulteration.

Much difficulty is found in preserving tincture of kino from gelatin-

izing. Numerous remedies have from time to time been proposed; namely, it was thought that the addition of logwood could prevent the change; alkalies were also tried, but they change the tannin and destroy the astringency. Glycerin came in for its share, perhaps with good effect, and filtration through magnesium carbonate was also suggested. The application of sugar has so far not yet been made; and since the sugar does not prevent an abundant precipitation, in syrup of blackberry, it will perhaps be of little use here. But all concur that an aqueous solution is above all others the most objectionable.

In the administration of these remedies, a large proportion of alcohol is objectionable; nevertheless, alcohol is by all means and pre-eminently the best solvent and most efficient preservative of tannin and its varieties. The writer takes occasion to propose it here as emphatically preferable to any other menstruum, and the stronger the alcohol, the better it conforms to the object in view.

Strong alcohol exhausts kino more rapidly and efficiently than any other solvent, and the solution never gelatinizes, as it seems that the presence of water, together with a pectase-like substance, causes the deterioration of the tincture. Now as strong alcohol excludes this substance, by reason of its insolubility in this menstruum, consequently a tincture prepared by exhausting kino first with strong alcohol, and diluting the solution moderately with water, that is, so as to bring it to the officinal alcoholic strength, will retain its astringency and fluidity unimpaired by age.

The writer, however, prefers a stronger tincture than the officinal, both in regard to the alcohol and proportion of kino. If the strength of the tincture of kino is doubled, which can be most readily accomplished by means of strong alcohol, the dose will be only half as large by measure, and, therefore, even less alcohol will have to be taken, together with a certain amount of kino, than in the officinal tincture. The mechanical effect of strong alcohol in the exhaustion is also a point of much importance, because the officinal method of manipulation is really a very poor one. The application of sand for effecting a distribution of the powder, which, with the use of the officinal menstruum, rapidly agglutinates, is the veriest nonsense. When a powder cannot be practically percolated alone without producing an agglutinated mass, the intervention of an insoluble solid is not of much avail. Such material can only be satisfactorily exhausted by macera-

tion, either by resorting to the rotation method, or suspending the material in the upper portion of the liquid, by the aid of a net, similarly to the process much used for dissolving the licorice in sticks.

With the employment of strong alcohol, the powder dissolves at once, without cohering in the least; a short period of trituration suffices to effect complete solution of the total soluble matter.

The liquid does not filter readily, but runs through a strainer perfectly clear, leaving the insoluble residue, even after pressure, entirely in the strainer.

The writer prepares tincture of kino as follows:

Take of Kino, 3 troy ounces.
Strong alcohol,
Water, of each sufficient.

Place the kino into a spacious mortar, and triturate it thoroughly; then pour on to the powder half a pint of strong alcohol, and continue the stirring a short time; pour off the clear liquid, after the residue has subsided, and add half a pint more of strong alcohol; triturate again as before, and unite the whole with the first solution; set the mixture aside for about half an hour, shaking it up frequently, then pour the whole of it upon a muslin strainer, and press out the liquid; to the residue add 3 fluidounces of strong alcohol; press it out again; unite the strained liquids, and complete the tincture by adding water to the measure of 2 pints, and mix.—*The Pharmacist, August*, 1873.

ETHEREAL TINCTURE OF IODOFORM.*

BY MM. ODIN AND LEYMARIE.

At the request of Dr. Gubler, who uses an ethereal solution of iodoform as a topical application, the authors sought to ascertain the most favorable conditions for its preparation, and to determine the relative proportions in which the iodoform is soluble.

(1.) A solution prepared in a flask of white glass after a little time became discolored; the canary yellow passed to an amber, and then brown color. This change was the result of the liberation of a portion of the iodine, which colored starch paper blue.

(2.) When iodoform previously pulverized was used, the solution, exposed to diffused light, altered much more quickly than the first.

* Repertoire de Pharmacie, June 25, p. 330.

(3.) When two ethereal solutions were made simultaneously, the one with crystallized iodoform, the other with powdered iodoform, and using red glass bottles, the first preserved its yellow tint, the second assumed a brown color after a few days.

Solubility.—Experiments were made with pure ether of 65° Baumé (sp. gr. ·724), and also with ethers of 62° and 56°, the temperature being 13° C. Eight grams of tincture obtained with these ethers contained iodoform in solution respectively to the following extent:—

Ether of 65° Baumé	. .	1·61 grams.
" 62° "	.	1·26 "
" 56° "	. .	1·13 "

The iodine being equal in the first case to 25·195 per cent. of the ether; in the second to 18·694 per cent., and the third to 16·044 per cent., or in round numbers, at 65° B., one-fourth; at 62° B., one-fifth, and at 56° B., one-sixth.

The conclusions drawn by the authors from the foregoing experiments are—

(1.) To employ iodoform in the crystalline state.

(2.) To make the solution in a *red* glass flask by simple agitation.

(3.) To use the following proportions:

Crystallized iodoform	. .	1 gram.
Ether (60° Baumé)	. . .	4 grams.

Pharm. Journ., Aug. 2, 1873.

NOTES ON THE MEDICINAL PLANTS OF THE RUTACEÆ.

By John R. Johnson, A. L. S.,
Curator of the Museums, Kew.

The Natural Order *Rutaceæ*, as at present constituted—that is, including as tribes such groups as *Zanthoxyleæ* and *Aurantieæ*, which by former botanists have been dignified as Natural Orders—includes a great number of medicinal and economic plants; for besides such well-known articles as rue, buchu or barosma leaves, and cusparia bark, many others of less repute are brought together. We purpose to refer to those which, though being used by the natives of the countries in which they grow, are seldom seen except in museum collections in this country, and some not even there. In the tribe *Cusparieæ*, besides the genus *Galipea*, which is, of course, well known as the source of cusparia bark, occurs *Ticorea*, two species of which are

medicinal in Brazil. *T. febrifuga*, St. Hil., a tree of about twenty feet, has a very bitter and astringent bark, and is used as a substitute for cinchona in intermittent fevers. In the province of Minas Geraes it is known as *Quina* or *Folhas brancas*. The leaves of *T. jasminiflora*, St. Hil., also a tree about twenty feet high, growing in the same country, are boiled by the natives for the sake of the juice, which they value as a medicine. *Peganum Harmala*, L., is a powerfully disagreeable-smelling herbaceous plant, common in Southern Europe, Asia Minor, and throughout Scinde and the Punjaub. In Turkey the seeds are used as a vermifuge, and in the Crimea the Tartars collect them for the same purpose. In the Pharmacopœia of India it is stated that "these seeds have long held a place in Eastern materia medica as a stimulant, emmenagogue, and anthelmintic. Mild narcotic properties have also been assigned to them, and, according to Kæmpfer, delirium characterized by cheerfulness follows their use in some cases. Further investigations as to the properties of these seeds are desirable."

The European dittany (*Dictamnus albus*, L.), a plant sometimes cultivated in gardens for the sake of its handsome flowers and fragrant leaves, is well known for the abundance of volatile oil or resinous matter, which is secreted in such large quantities that the plant not only ignites on the approach of a lighted candle, but the air surrounding the plant becomes itself inflammable in hot weather. The root is resinous, bitter, tonic and stimulating. *Monnieria trifolia*, L., a shrubby plant of Guiana and Brazil, has an aromatic and acrid root, much prized by the natives as a diaphoretic, diuretic and alexipharmic. The leaves of species of *Adenandra*, a South African genus of plants, having the habit of the common rue, are used at the Cape for the same purposes as those of *Diosma*, while in Australia the leaves of some of the species of *Correa* are used as tea. They are handsome, shrubby plants, and are in cultivation in greenhouses in this country.

The genus *Zanthoxylum*, the type of the tribe *Zanthoxyleæ*, has a wide geographical range, and a variety of applications. In India, the fruits of *Z. alatum*, Roxb., *Z. hastile*, Wall., and *Z. Budrunga*, DC., are all articles of the native materia medica. They are aromatic and pungent, and are said to possess stomachic and carminative properties. *Z. Rhetsa*, DC., a large spreading tree, growing on the mountainous parts of the East Indian coast, has its unripe capsules

and small berries of a gratefully aromatic taste, somewhat like the skin of a fresh orange; the ripe seeds have a pungency somewhat like pepper, and the inward part has an acid bitter taste. The name *Rhetsa* is said to signify in the Telinga language a committee, and alludes to the fact that, under the shade of this tree, the hill people assemble to deliver discourses and to consider and discuss matters of public concern. In China the root of *Z. nitidum*, DC., is aromatic, and is used as a sudorific, emmenagogne and febrifuge; the leaves also are used as a condiment on account of the volatile oil they contain. The fruits of *Z. piperitum*, DC., are known as Japan pepper; they are of an agreeable aromatic flavor. In the West Indies the barks of *Z. ternata*, Desv., and *Clava-Herculis*, L., are regarded as antisyphilitic, and the bitter astringent leaves are used as a vulnerary. *Z. fraxineum*, Willd., is known in America as the prickly ash or toothache bush, from its reputation as a masticatory in curing toothache. The bark is officinal in the United States, and as seen in the shops is in small quills varying from a line or two to about an inch in diameter. It is of a darkish grey color with occasional lighter patches and covered with fine transverse cracks, and in the younger pieces the prickles are sometimes remaining. It is light, brittle, and has at first a somewhat sweetish aromatic taste, which changes to a bitter acrid flavor; this acridity is extracted either by boiling water or alcohol. The bark is stimulating, producing a sense of heat in the stomach. It is also said to be a "powerful sudorific and diaphoretic, and to have been used successfully in paralysis of the muscles of the mouth." In chronic rheumatism it is very highly extolled, and is given in the form of a powder, a dose being from ten grains to half a drachm repeated three or four times a day. A fluid extract has likewise been prepared and administered in doses of from fifteen to forty-five drops. A favorite form of administration, however, is a decoction prepared by boiling an ounce of the bark in three pints of water until it is reduced to a quart, a pint of which should be taken in divided doses during the twenty-four hours. A tincture made from the berries is sometimes employed as a carminative in doses of ten to thirty drops, which can be increased if the stimulating effects are desired.

In New South Wales, *Geijera salicifolia*, Schott, a moderate-sized tree, is known as the "Balsam Capivi Tree," from the strong flavor of that balsam which pervades the bark. I am not aware whether or

not it is used in medicine, but a good ink is said to be prepared from the bark. *Esenbeckia febrifuga*, Mart., or *Evodia febrifuga*, St. Hil., a native of the forests of Brazil, is remarkable for its extremely bitter bark, which is used as a tonic and febrifuge; while *Toddalia aculeata*, Pers., a moderate-sized shrub, widely dispersed through Tropical Asia, has considerable reputation as a stomachic and febrifuge, all parts of the plant being used. In India the bark of the root is officinal, and is used as an aromatic tonic and stimulant "in constitutional debility and in convalescence after febrile and other exhausting diseases." It is given in the forms both of tincture and infusion. The following notes on the value of *Toddalia* root-bark are from the "Appendix to the Indian Pharmacopœia:" "Strong testimony to the value of *Toddalia* root is borne by Dr. G. Bidie, who states that though he has not employed it as a febrifuge, he can speak with confidence as to its great value as a stimulant and tonic. Every part of the plant, he remarks, has a pungent, bitter taste and a pleasant aroma, but these qualities are most marked in the root. The dried root-bark is of a yellowish-brown color, and retains its pungency and bitterness for a long time. The whole plant possesses active stimulant, carminative and tonic properties; and he adds that he knows of no single remedy in which all these three qualities are so happily combined. This article possesses additional interest from having been identified by M. Guibourt with *Lopez root*, which formerly enjoyed considerable repute in Europe as a remedy for diarrhœa. Mr. Daniel Hanbury, from examination of genuine specimens of the root, confirms M. Guibourt's views." The natives also prepare a liniment by frying the root and green fruits in oil, which they consider good for rheumatism. The fresh leaves are likewise eaten raw in stomach complaints, and the ripe pungent berries make capital pickles. The bark, root and leaves of *Murraya Königii*, L., a small East Indian tree, are used in native practice as a tonic and stomachic: the young leaves of this species, as well as those of *M. exotica*, L., are used to flavor curries. In Mauritius the latter are said to impart a flavor superior to that of bay-leaf, while in India they further have the reputation of aiding digestion.

The wood-apple tree, or elephant apple of India, *Feronia elephantum*, is the only species of the genus, and is common in India, Ceylon and Java. The fruit is hard and woody, globose, about the size of a large orange; the pulp is used in India in cases of dysentery and

diarrhœa. The leaves smell like anise, and are used in native medicines as a stomachic and carminative. A decoction of the unripe fruit is said to act as a powerful astringent, and the ripe fruit as an antiscorbutic. A gummy substance flows from the stem when wounded, which is used by painters for mixing with colors, also in dyeing and for making ink and varnish, as well as by bricklayers in preparing a fine kind of whitewash. This gum occurs in irregular, reddish-brown, semi-transparent tears; powdered and mixed with honey, it is used in dysentery and diarrhœa. The Bael fruit (*Ægle Marmelos*, Corr.) has been brought into notice in this country recently; it is imported in slices, dried, or in quarters or pieces with the rind still attached. The entire fruit is round, somewhat resembling a large orange. It is officinal in both the British and Indian Pharmacopœias, and is used in India "in atonic diarrhœa and dysentery; and in the advanced stages of those diseases, in irregularity of the bowels, and in habitual constipation, it is a remedy of much value." It is administered in the forms of a mixture and an extract; those prepared from the dried fruit, as seen in this country, are said to possess much less medicinal power than those prepared in India from fresh fruit. It will be needless to recapitulate all that has been said and written on the medicinal value of this fruit, as they will be fresh in the minds of the readers of the Journal, many of whom have likewise probably tested the article itself.

In concluding these notes it only remains to mention two or three plants, the properties of which are little known, but which are nevertheless reputed to be useful in their native countries; thus, for instance, *Hortia brasiliana*, Vand., is said to possess febrifugal properties and to be used in Brazil. The leaves and shoots of *Ptelea trifoliata*, L., a North American shrub, are used in infusion as an anthelmintic, and the aromatic fruits are said to be a good substitute for hops. *Casimiroa edulis*, a tree of Mexico, has a bitter bark, which, together with the leaves and seeds, are used as a medicine when burnt and reduced to a powder.—*Pharm. Journ. and Trans.*, *May* 31, 1873.

THE DATE TREE AND ITS PRODUCTS.

By Gastinel Bey.

The date has been known from the farthest antiquity. It flourishes in all the vast regions of the Tropic of Cancer from the Atlantic

Ocean to the valley of the Indus, between the 12° and 37° N. latitude. Throughout this immense space, it is, like the bamboo in Eastern Asia and the cocoanut in the equatorial regions, the most precious gift of nature to man, for it contributes to all his most essential wants: food, clothing, lodging, cooking utensils, etc. The date is certainly the most common tree in all the valley of the Nile, and is found in greatly increasing numbers from the village of Ibrim in Lower Nubia to the Mediterranean. A remarkable peculiarity shown by the date tree of Lower Nubia is that from the top of the roots several stalks grow, to the number of from three to fifteen, which constitute a group of stipes, more or less divergent, nearly all of the same height, and amongst which are found males, that nature seems to have placed there for the fecundation of all the group. The date presents a fine sight, when from amongst the bower of leaves which surmounts it are suspended enormous bunches of fruit, very often furnishing several hundred weight. The dates of Upper Egypt and the Oasis are the most delicate. They are not left to ripen on the tree. After being gathered and exposed several days to the sun, they get ripe, and are then a very fine and sweet fruit, which, by reason of its nutritive properties and easy digestion, is a veritable gift of Heaven, for all find in it a healthy and abundant nourishment. The fresh dates, which are mostly found in quantities in the Cairo markets, are the red dates called in Arabic "Balah ayany," and the yellow sugary dates called "Balah ama'at." The first take their name from a village of Upper Egypt, from whence they come, and the others are collected at Bedrechyn, Zaggarah and Ghyza. These dates are of a dark yellow, smaller than the first named, and soon pass into acid fermentation. But the largest quantity of dates are not eaten fresh. A great part are dried for consumption during the winter, or for export to foreign countries. These are pressed in large masses, which keep perfectly well, and from which are prepared cakes of a very fine taste. The Arabs of Sinai make a date cake, into which they put almonds, and then wrap it in gazelle skins; these sacks of date cake are sold in Cairo during the winter. In Egypt the date trees produce several varieties of fruit, which differ from each other in size, form, color, season of ripening, the nature of the drupe, being more or less sweet, and their facility of keeping. All these circumstances have established upwards of twenty varieties of dates, to which the Egyptians have given more or less ridiculous names. It is not for its fruit alone

that the date tree is valued; all its parts are utilised and of great service. Thus the trunk, in Arabic Guishé, is the wood, which, after having been split in two parts, is employed for the different wants of agriculture, and is used for beams in the construction of houses. The branches (Dierid), or rather the leaf stalks, are also used in the construction of houses, by placing them above the beams as joists. A large quantity of useful and cheap articles are also made of them, such as cages for poultry, beds, chairs, supports for divans, seats, bars, baskets, provision chests, etc. The large extremity of the petioles (Taraf-el-Orsoum) is fibrous, and is used, after beating out the fibres, for brooms, etc. The leaflets or folioles (Khou) are used for making mats and baskets for domestic use; fly flappers are also made from it, which, in Europe, are articles of great curiosity. The membraneous sheaths of the base of the leaves, formed by a network of several layers of crossed fibres (lijf), are sufficiently strong to make ropes of, which are used for agricultural and traction purposes. The fibrous stalks or peduncles are also used for rope-making. The fruit (balah or tamr) is not only used for food; by compression a syrup or molasses is extracted, which is largely consumed. In the dry state dates, by reason of their mucilage, are mixed with other fruits, such as jujubes, figs, raisins, known in pharmacy under the name of bechic or pectoral fruits, and from these several very useful drinks are made for affections of the chest. The chemical composition of dates is the same in all varieties, but the proportions vary greatly. The component parts are as follows:—Water, mucilage, gum, vegetable albumen, crystallizable sugar, uncrystallizable sugar, parenchyma, cellulose, and mineral salts. Coumarin (C_{18} H_6 O_4) is also found in them; it is a neutral crystalline principle of an agreeable aromatic odor, which is also found in the Melilot and principally in the Tonquin bean, or seed of the *Coumarouna odorata*, which is found in Guiana. In Egypt dry dates are used in the manufacture of alcohol. Those called "Ibrim" of Lower Nubia are preferred. After having removed the stones, the fruit is mashed and steeped in twice its weight of water at a temperature of 25° to 30° Centig., until fermentation has well set in. The fermented liquid is then distilled, and yields weak alcohol of an empyreumatic odor, caused by an oily principle found on the surface of the residue of distillation. By purification of the distilled product, an alcohol is obtained of from 46° to 50° Centig., of which large quantities are consumed, after some gum

mastic or essence of aniseed has been dissolved in it. By a prolonged fermentation a good vinegar is obtained. The fine yellow dates of Rosetta and Burlos, when not quite ripe, are preserved and much sought after in Europe, and might become the object of an important commerce. In making this the epidermis is removed, and the two ends cut off; the stone is taken out by means of a small piece of wood, and the fruit thus prepared is boiled in water to soften and separate an astringent principle; they are then put to drain in a basket, after which they are put in a glazed pot. There is then added some hot concentrated essence of sugar, in which they are left for six hours; at the end of this time the syrup, having lost its consistency by reason of its mixture with the water contained in the dates, is put on the fire, and it is concentrated as before. Some more dates are then added, into which torrefied almonds have been placed, or some pistachios instead of the stones, in order to keep them from getting out of shape. It is then boiled again until the syrup becomes more solid, and afterwards put in earthenware pots. After cooling, a little pulverized sugar, impregnated with essence of lemon, is added to flavor it. The stones or kernels (Naoua) are also put to several uses. The nomad Arabs of the deserts, who consume a large quantity of dates, pulverise the stones, which they mix with dates of inferior quality, and make into balls; these, after being slightly dried, are given to their camels for food. The stones of certain kinds of dates like those of Rosetta and Burlos, being rather large, are carved and pierced to make beads for rosaries. They are also greatly used for fuel. It is said that the Chinese mix a quantity of charcoal made from a species of date stone with their Indian ink. They also use this charcoal as a dentifrice. A tree of such great utility as the date ought to be very rarely destroyed. Generally only the males are cut down when they are too numerous, or the females when their great age renders them unproductive; but previously a soft milky sap is obtained from the extremity of the stipe by cutting a horizontal hole in it, deep enough to reach the heart of the tree. A reed is shaped to fit it, which conducts the sap to a vessel. This liquor, called palm milk, ferments in a few hours, and is converted into a sort of wine of a pleasant flavor. The tree is then cut down; the branches and leaf stalks are cut off, and after having removed the woody fibres which surround the cabbage or heart (goumar), this is taken out. It is a terminal shoot, formed of white and tender scaly superposed layers, of the consistence

of a fresh almond, which it resembles in flavor. This edible cabbage of the date tree is in great request.

In addition to the foregoing interesting article, the following further particulars are added respecting the date and its products, by the Editor of the *Journal of Applied Science.*

There are some varieties of dates which ripen and decay on the tree, and of which the pulp is leathery and doughy, but the more common become soft and sweet. The date ought to be gathered while still firm and sour, and ought to be placed into heaps in order to undergo fermentation to soften them. The different kinds of fresh dates most often seen in the Cairo markets are the early red dates (balah hayâny) and the yellow sweet dates (balah ama'âṭ). The date has from two or six to twelve or fourteen *spadices.* But when they are too numerous, it becomes requisite to remove some in order that the tree shall not be weakened or thrown down by the weight of the bunches, and the fruit, being too numerous, would not be of such good quality. Four hundred weight of dates have been gathered from one tree. In no country is the date so productive as in Egypt. The date does not always produce a good crop; it usually happens that after a very large one, the next year they only produce a medium quantity, very often only but a small yield, and sometimes none at all. There are a great many varieties of the date, which differ in the size, form, and quality of the fruit. By color it may be divided into three classes—the red, yellow and white. Those coming from Upper Egypt and the Oasis are the most esteemed. They ripen in Upper Egypt about the end of June, while in Middle and Lower Egypt they are a month or six weeks later. The country from whence the date originally came is not well known. The Arabs say it originated in Arabia Felix. It grows spontaneously in Egypt, and seems to have naturalized itself there from the most ancient times. In the towns—Cairo for example—there are date trees between the houses and around the mosques, or in gardens, the trunks of which are sixty-five feet high. The highest in Cairo was near Kair-Nil, and measured eighty-five feet. It was so high that the wind, by dint of bending it, overthrew it altogether two years ago, and thus the patriarch of date trees, which was remarked by the scientific men who accompanied the Eastern army under General Bonaparte, and which was about two hundred years old, finished its existence. The date is found all over Egypt, and produces excellent fruit. According to Strabo, they were

formerly of bad quality in Egypt, except at Thebes, the reason of which was, without doubt, that they were only cultivated and looked after in that region. In the forests, the date is found in hundreds of thousands, this aspect being majestic and sorrowful. On seeing these naked trunks rear themselves to sixty or seventy feet in the air, one is reminded of those delicate columns which the architecture of the middle ages scattered with such profusion in its buildings.

The date is the national tree of the Egyptians, and is one of the most useful to man, in that all its parts are utilised in art, industry, medicine, and domestic economy. Its culture has been improved by the Arabs, who have obtained a large number of fine varieties—as many as thirty distinct ones are enumerated. There are generally four hundred trees per feddan (4,500 square yards). Delile states, in his "Flora of Egypt," that from what he has heard from the growers in the neighborhood of Cairo, it is possible when a tree is old and produces little fruit, to shorten and replant it. A year before this takes place, two pieces of wood are forced into the trunk, in the shape of a cross, at about three yards from the top; the wedges and holes in the tree are then covered with mud, held on by a network of cord. It is always kept damp; every day during the summer a man mounts the tree and waters it. This he does by first climbing to the top of the tree, and then drawing up a pitcher of water, which he throws on the mud. At the end of the winter, radicles are found formed under it. The tree is then cut off below the mud, and planted in a hole near a trench, so that it may be easily watered.—*Journal of Applied Science, Aug.* 1, 1873.

NOTES ON THE CULTIVATION AND PREPARATION OF LACTUCARIUM.*

By Thomas Fairgrieve.

Lactucarium—a substance allied to opium in appearance and in physical and physiological properties—is prepared from the milky juice of various species of *Lactuca*. It was introduced into the pharmacy of this country by Dr. Duncan, Professor of Materia Medica, Edinburgh, in the early part of this century; but it had been in use for some time previously in America, on the recommendation of Dr. Coxe, of Philadelphia. Professor Duncan employed the garden

* "Transactions and Proceedings of the Botanical Society of Edinburgh," vol. xi. part 2.

lettuce as his source of lactucarium, and his process of preparation was as follows: When the plant reached the flowering period, a portion of the stalk was cut off, and the milky juice which exuded was permitted to harden in the sun. On the following day this hardened juice was secured by cutting a thin slice off the stalk, and to this fresh wound a further quantity of juice flowed and again hardened, and so the process continued from day to day till the plant was exhausted. The thin slices which bore the thickened juice were digested in spirit of wine till a solution of a certain degree of concentration was obtained, which was then evaporated to a thick extract.

Among later local cultivators were the late Dr. Young of Canonmills, and Mr. John Duncan, of Duncan, Flockhart & Co., who used the wild lettuce, *Lactuca virosa*, as the source from which they drew lactucarium. This plant is still found sparingly on Arthur's Seat, near Dudingston, and is abundant on the rocks of Stirling castle and elsewhere.

For the last sixteen years I have had from one to two acres under cultivation for the preparation of lactucarium. The plant employed is *Lactuca virosa*, var. *montana*, the seeds being sown in autumn, and the young plants planted out early in the following spring. The plant, under favorable circumstances, grows to a height of from 10 to 12 feet, with a stalk of from 1 to 1½ inch in diameter. The flowers appear about the end of July and continue throughout August. The capitulum only expands during sunshine, and as when in fruit the least breath of air wafts away the pappose achenes, the collection of seed is a matter of constant anxiety and attention. In one wet and sunless autumn I was unable to secure a single seed, none having ripened.

In favorable seasons the collection of the juice may commence about the middle of July, but it more commonly is the beginning of August before anything is done. The plants are then from 3 to 5 feet high, with thick succulent stalks, and the flower-buds just appearing. The collectors proceed over the field, cutting the head of each stalk, and scraping the flow of juice into their vessels—one person cutting being followed by two collecting the juice. This process they repeat six or seven times a day, each time a new cut being made a little lower down the stalk. The period of collection generally lasts from six weeks to two months, closing usually about the third week in September; but for the last two years I collected up to the end of

September. Towards the close of the season the plants become so woody and hard that it is with great difficulty new cuts can be made for the flow of the juice. About this time the frosty nights seriously influence the flow of the juice, and determine the cessation of the year's collection. The juice after frost usually becomes of a watery consistence, and when it remains thick, as it sometimes does, it is so deteriorated in quality as to be worthless.

The amount collected during the day is by the evening changed into a thick viscous mass. It is then turned out of the vessels, divided into pieces suitable for drying, and spread out to the influence of a fire, as the sun heat in our climate is not sufficiently strong for the drying process. The time occupied in drying varies according to the heat applied, but I obtain the best results in about five days.

As regards the yield of lactucarium much depends upon the season. In rainy weather no collection can be made; moist warm weather causes the greatest flow of juice, while in dry, hot seasons the stalks are slender, the yield of juice small, but usually of very superior quality. So much does the yield vary that in some seasons the collecting vessel of 8 or 9 oz. capacity is not more than half filled daily, and in other years three such measures-full are gathered each day. Generally six such measures, equal to a little more than 4 lb of thickened juice, yield 1 lb of solid lactucarium. On an average I calculate each plant yields 40 to 50 grains of lactucarium, but this estimate includes plants of all descriptions. Were the really healthy and productive plants only taken into account, the average yield would be much greater.

A very small quantity of lactucarium is now used in the medical practice of this country, and I do not know the source of demand which I am annually called on to supply.

For many reasons lactucarium cultivation is a precarious industry. Besides its dependence on rainy or dry weather, wind is fatal to the plants in all stages after the stems have shot up. From their first appearance, the plants are also peculiarly liable to be attacked at the root by a species of grub, which causes great havoc.—*Lond. Pharm. Journ. and Trans., June* 7, 1873.

ON THE MANUFACTURE OF CHLORAL HYDRATE IN GERMANY.

By Gustav Detsenyi.

The extraordinary reduction in the price of hydrate of chloral since 1869—from 90 thalers per kilo to 3 thalers—is easily explained when we consider the enormous increase in its production which the demand for it has created. Early in the year 1869, Dr. Liebreich, of Berlin, introduced it as a medicine, and thus gave an impulse to the invention of simpler and cheaper methods of preparing it, and to-day its manufacture has reached such a state of perfection that we can scarcely imagine any essential improvement in it possible. Three years ago it was scarcely possible to prepare a few pounds of chemically pure chloral hydrate in as many weeks; now 500 pounds per day are made in a few German chemical works.

The principal part of the operation is passing chlorine gas into 96 per cent. alcohol. The chlorine is made from muriatic acid and black oxide of manganese. In Schering's establishment, in Berlin, a large crock of stoneware, four or five feet high, is half filled with the black oxide of manganese, and muriatic acid is allowed to flow in. A delivery tube of lead and glass conducts the chlorine thus generated to a Woulfe bottle, where it passes through water, and thence into a carboy containing 120 to 150 pounds of 96 per cent. alcohol. A second carboy is also connected with the first, in order to collect the hydrochloric acid formed.

The chlorine is passed uninterruptedly for twelve or fourteen days, until the alcohol is warmed to 60° or 70° C., and acquires a density of 41° Baumé. This forms one-half of the operation, and requires cautious, conscientious and experienced workmen. Especial attention must be devoted to the luting and to refilling the chlorine generator. The apparatus is luted with a paste of bran flour and water, and the cover of the crock is loaded with heavy weights. Before renewing the charge of black oxide of manganese, the chloride of manganese solution is drawn off by a cock near the bottom, and the chlorine in the vessel allowed to escape by a delivery tube that goes up through the roof into the open air. In the Berlin establishment above mentioned there are forty of these apparatus at work, producing three carboys of chloral per day.

The second pare of the operation consists in the purification of the chloral hydrate. For this purpose the chlorated alcohol, before ob-

tained, is placed in a copper still lined with lead, and capable of holding from 300 to 400 pounds, and mixed with an equal weight of oil of vitriol, and then carefully heated over an open charcoal fire to the boiling point. A considerable quantity of muriatic acid is thus driven off, while the chloral vapors are condensed by an upright cooler. The boiling is continued until hydrochloric acid ceases to be given off, which usually requires seven or eight hours for 150 pounds of chloral. It is worthy of note that in this operation the contaminating alcoholate of chloral is entirely destroyed.

The cooler is now taken away, the still provided with a thermometer, and the free chloral distilled off. At first the liquid boils at 95° to 96° F., and by the time the thermometer rises to 100° all the chloral has gone over, and the distillation may be stopped. The distillate is now rectified in a smaller copper retort or still, holding but 150 to 180 pounds, lined with lead, and provided with a delicate thermometer. Before distilling, the free hydrochloric acid still remaining in the chloral is neutralized with triturated chalk. The distilled chloral is caught in glass flasks, and three ounces of water added to every four pounds of chloral, and cooled rapidly by continuous shaking. If required to be crystallized, it is emptied into large, flat porcelain dishes, and in half an hour forms the large, flat crystals so much in demand in America. These are broken into smaller pieces and packed in stone jars for shipment. Sometimes it is dissolved in chloroform, from which it crystallizes in about a week. The crystals are freed from the mother liquor by a centrifugal machine, and dried in a closet heated by steam. The mother liquor which is thrown off can be used to dissolve a new portion instead of chloroform.

Having sketched the production of chloral on a large scale, we may now look after the by-products, which play such an important role.

Chloride of manganese is formed in immense quantities, and unfortunately finds but little use in the arts. Schering has collected in two years about 5,000 carboys of this solution, and no small capital is invested in the containing vessels, so that at last it has become necessary to throw it away.

The second by-product is the hydrochloric acid from passing chlorine through the alcohol and from the first distillation. This, of course, is returned to the chlorine generator.

The etherial liquid which collects in the last carboy, under the hy-

hydrochloric acid, is also interesting. According to an analysis by Dr. Kræmer, of Berlin, it is a mixture of chlorides of ethylene and ethylidene, both of which are employed in medicine. The chloride of ethylidene was also introduced by Dr. Liebreich as an anæsthetic. These liquids are separated by fractional distillation in the usual manner in copper retorts. The free hydrochloric acid contained in them must, of course, be neutralized with soda or potash, and the liquids dried over chloride of calcium. Although their boiling points differ by 23° C., it is scarcely possible to absolutely separate large quantities of them.

The next and last by-product is the sulphuric acid used in expelling the hydrochloric acid. This is sold at a low price for use in other manufactories where its impurities do no harm, as, for instance, in making soda water.—*Journ. of Applied Chemistry, August*, 1873.

TOXICOLOGICAL DETECTION OF PHOSPHORUS.

By Prof. G. Dragendorff.

We extract the following from a notice of Dragendorff's "Manual of Toxicology": The detection of phosphorus can be effected by two methods: we either seek to isolate it as such, or at least to exhibit its luminous properties; or, we endeavor to find its products of oxidation other than phosphoric acid (which, of course, is naturally present in the animal body). Mitscherlich's procedure is based upon the isolation of the phosphorus by distillation and the exhibition of its peculiar light. The suspected fluids are diluted, if needful, with water, and the homogeneous mixture introduced into a flask of sufficient size. Sulphuric acid is then added. The flask is closed with a cork, through which passes a tube bent twice at right angles, 2 or 3 centimetres in diameter and 5 or 6 long, and communicating with a Liebig's condenser of glass. Heat is then applied to the flask, and the process of distillation carried on in a darkened room. Luminous vapors appear in the flask as soon as the liquid is in ebullition. These vapors gradually ascend the tube, and become almost permanent at the spot where the first drops of watery vapor condense. Fresenius and Neubauer have recognized these luminous vapors for half an hour with a solution containing 1 milligrm. of phosphorus diluted to 200,000 parts. Husemann and Marmé introduced 1 c.c. of phosphuretted oil into the stomach of a rabbit, and obtained distinct luminous indications from

the contents of the stomach, the animal having been killed five hours afterwards. The distillate may contain granules of phosphorus even when none can be recognized in the matters submitted to distillation. The process, however delicate, is not applicable in all cases. Certain products of putrefaction, creasote, sulphuretted hydrogen, alcohol, ether, and oil of turpentine prevent the appearance of the luminous vapors. The phosphorus may always be detected when in quantity sufficient to separate out in granules, but the presence of these foreign bodies may mask mere traces. In such cases the distillate is subjected to a further examination. Scheerer recommends to distil in a current of carbonic acid gas, in order to prevent any of the phosphorns being lost by oxidation. By this method, however, the valuable character of luminosity is sacrificed. It may happen that all, or most of the phosphorus, has been transformed into phosphorous or hypophosphorous acid, in which case little or no luminous vapor can be detected by the above-mentioned method. The vapors of phosphorous and hypophosphorous acids reduce salts of silver, and consequently blacken filter-paper saturated with an argentic solution. This reaction is so sensitive that when it fails we may be sure of the absence of phosphorus. The converse unfortunately does not hold good, since many bodies produce a similar reaction, *e. g.*, formic acid and sulphuretted hydrogen. Hence Scheerer recommends the simultaneous employment of paper soaked in acetate of lead, which is blackened by sulphuretted hydrogen, but not by the acids of phosphorus. Fresenius and Neubauer have shown that ozone may give a brown color to the lead-paper. It is, therefore, better to replace the lead with other test-papers prepared with nitro-prusside of sodium, arsenious acid, and chloride of antimony. The simultaneous coloration of these papers will show the presence of sulphuretted hydrogen, but will prove nothing as to the simultaneous presence or absence of the phosphorous acids. Scheerer proposes to search for phosphorus in the silver paper. It is to be washed with boiling water, the silver separated with hydrochloric acid, and phosphoric acid determined in the filtrate by means of molybdate of ammonia. It is better to dissolve the filter-paper in aqua regia. The only drawback to this process is the difficulty of procuring filter-paper absolutely free from phosphates. Dussard and Blondlot treat the homogeneous mass under examination with pure zinc and sulphuric acid. The gas generated contains phosphides of hydrogen, and burns with a characteristic green flame. The gas,

before being burnt, is freed from every trace of sulphuretted hydrogen by being passed through tubes filled with pumice steeped in potassa-lye. It should be burnt at a platinum orifice, for the yellow coloration of soda in the glass would otherwise mask the reaction. The hydrogen must not be mixed with arseniuretted or antimoniuretted hydrogen. The presence of alcohol, ether, and other organic matters is fatal to the reaction. The green color is more distinct by daylight than in a darkened room. Blondlot has remarked that the phosphuretted hydrogen disengaged gives a black precipitate, phosphide of silver, in solutions of nitrate of silver. The phosphide, placed in a suitable apparatus with zinc and hydrochloric acid, gives off a gas which burns with a green flame. In this manner he removes the organic matters which interfere with Dussard's procedure. The following is his method: The suspected matters are converted into a homogeneous paste, and introduced into a roomy hydrogen apparatus with zinc and sulphuric acid. The gas is passed through a solution of nitrate of silver. The precipitate is filtered off, when it no longer increases in bulk, washed and introduced into a small apparatus, and treated as above. This process occasions the loss of a part of the phosphorus. Fresenius and Neubauer have proved that merely two-thirds of the phosphorus are thrown down as phosphide of silver. These two chemists combine the two procedures of Mitscherlich-Scheerer and of Dussard-Blondlot. They first employ the method of Mitscherlich, or that of Scheerer, according as there appears to be more or less of the poison present. In some cases not merely distinct luminous vapors are seen, but granules of phosphorus are isolated. As soon as these characteristics cease to appear, nitrate of silver is added to the condensed liquid, and the distillation is continued. The well-washed precipitate is introduced into the hydrogen apparatus. The purity of the zinc and sulphuric acid employed should be determined by a previous experiment. Fresenius and Neubauer have analyzed a liquid (putrid blood and water), containing 1 milligrm. of phosphorus in 200,000. The first 400 c.c. of hydrogen presented the most characteristic reactions. The coloration was more feeble with the 400 next, and very faint but still perceptible with the 400 last. Christoffe and Beilstein recommend the examination of the flame with the spectroscope. The residue of the distillation may contain phosphorous acid formed by the oxidation of the phosphorus. It may be treated with zinc and sulphuric acid. Phosphoric acid is

never decomposed in these conditions. The contrary is the case with the hypophosphites, which, being latterly employed in medicine, may be the cause of errors.—*Chem. News* (*Lond.*), *July* 18, 1873.

THE CINCHONA PLANTATIONS IN JAVA.

By John Eliot Howard, F. L. S.

I did not receive till last Friday a pamphlet called 'A Contribution towards the Knowledge of the Cinchona Culture in Java. By K. W. von Gorkom. Translated from Dutch into German by C. Hasskarl." This paper, which may be considered official, helps greatly towards the understanding of the very important question, "From whence arises the superiority of the Dutch Calisaya tree, proceeding from Ledger's seed, over those raised from the same seed in British India?" I do not say that we have quite a definite answer, but that we are on the way to it, and shall soon, as I hope, get to the bottom of the business. I feel some responsibility to accomplish this, as in reply to an official letter of inquiry from her Majesty's Secretary of State for India, in January, 1872,* I ventured to recommend the cultivation of these superior kinds of Calisaya, and specially of No. V Calisaya (Broughton).

There is a contrast *now* pointed out between the plants from British India and those which have been raised in Java. "In 1866—67 there were raised 3000 plants of C. Calisaya, from seed obtained from British India. These have *quite an irregular type*, so that their identity with the remaining Calisaya plants may be called in question. Almost all the Calisaya plants raised since 1868, and thus planted out in the open, since 1869—70 proceed from the trees obtained from Bolivian seed. They show themselves *by an unchangeable type and a high percentage of quinine*, so that from this source in a few years distinguished bark for the manufactories may be expected."

The cultivators in Java, having obtained *the real sort*, have been careful to propagate it by cuttings, not trusting to the variable results of the seed. And what is this typical sort? Of this we shall doubtless be informed from Java. At present I can only say that the appearance of the small portion of the bark which I have seen is that of the *Zamba* (as I have said), and its contents in alkaloid, 7·44 per cent. of sulphate of quinine, against 7·40, my best

* See Pharm. Journ., March 9, 1872.

among many trials of this sort, confirms me in this view.* At the same time there are so many kindred kinds that we must wait distinct specimens of the flowers, fruit and leaves from Java. From British India we shall, I hope, receive similar specimens of *their* variety, which for convenience sake I shall call "*Calisaya red bark.*" The botanical specimens which I have from Ootacamund are all *C. Josephiana.* The one plant remaining from these I raised from Ledger's seed is C. Calisaya of a good type.† The present paper so completely confirms what I have written that I might have saved myself much trouble if I had received it sooner. It seems that on July 1st, last year, there were altogether 1,507,079 cinchona trees in Java (exclusive of C. Pahudiana.) Of these there were 1,090,797 trees of C. Calisaya, including 80,000 C. Hasskarliana. The amount of good Calisaya was, at the very utmost—"1200 plants planted out in the open in 1865-6, in 1866 about 20,000 plants of like origin (obtained from Mr. Ledger) and in 1869 again more than 5000 plants. The first and last sending of the seeds were through Mr. Schuhkraft, at La Paz, in Bolivia"—so that if my arithmetic is right, there were then 984,597 plants of poor and so-called Calisaya against 26,200 real and good trees. I sincerely hope the proportion may be reversed, and this speedily.

Of these inferior sorts Mr. Von Gorkom says: "The old original varieties of Calisaya show a remarkably varying percentage of alkaloids, and must consequently be considered more as medicinal barks."

But though of little account for the production of quinine, some of these trees contain (according to Mr. Moens) a *large* amount of *conchinin* (quinidine of Pasteur). This fact, which separates them widely from the genuine Calisaya, turns out most fortunate for the success of the plantations. There is no alkaloid (unless it be aricine) so sparingly produced by the Cinchona as this *conchinin* (whilst *cinchonidine* on the other hand is most abundant), and, as it happens to be much sought after, it may *soon* reach a price in the market near to that of quinine.

I refer to the original paper for much interesting information, and also for confirmation of what I have written, especially about the C. Pahudiana, which has been planted out in the wild forest, and (as Mr. Von Gorkom justly observes) "what has been obtained from these

* My 8 per cent. trial was from the bark of a *very large Calisaya tree*, of I know not exactly what type.

† I cannot identify it either with the Zamba or the red variety.

forest plantations is clear gain. From the C. Pahudiana planted out in the open ground since 1863-4 we have gathered about 5000 kilogrammes of bark." The maximum price in 1872 sale was 5*s.* 4*d.*, and the minimum price in May, 1873, was 2*s.* The whole may then represent at least £1500 already saved from destruction, and I will further add that this tree, "which has now become historical,"* is not unlikely to *improve much with age*, whilst the reverse is pretty sure to be the case (owing to the cinchotannic acid) with the C. succirubra.—*Pharm. Journ.* (London), July 19, 1873.

Varieties.

Trimethylamina in Rheumatism.—Dr. A. Gubler reviews the reports of Dr. Dujardin-Beaumetz on the favorable results obtained by him with this alkaloid, which he employed under the name of propylamina, and compares them with his own observations and those of many other French physicians; he comes to the conclusion that there is nothing to justify confidence into trimethylamina in painful articular rheumatism. Among the cases cited, there are many absolutely unfavorable, while in others merely a happy coincidence can be observed; not one furnishes a decisive proof supporting the favorable opinion entertained by some.—*Journ. de Pharm. et de Chim.*, 1873, June, 472–476.

The conclusions arrived at by Dr. Gubler are fully supported by the results obtained by American physicians more than ten years ago. At that time the trimethylamina employed was obtained from herring pickle purified in the form of hydrochlorate by alcohol. Dr. Dujardin-Beaumetz has used, in a number of cases, the alkaloid prepared synthetically. Trymethylamina, or as it is still called by many, propylamina, will probably hereafter remain obsolete as a remedy in rheumatism; whether the true propylamina deserves any better fate, appears, to say the least, very doubtful, according to the observations of Dr. Gubler.—Ed. Am. Jour. Pharm.

* The following is from Mr. Von Gorkom's account of the Pahudiana: "This sort of Cinchona soon raised a violent contest. Miquel defined it as the worthless *C. Carabayensis*, and remained of the same opinion. Howard examined it carefully and described it as a new kind, to which he gave the name of C. Pahudiana, in order to do honor to the statesman to whom, without contradiction, the paternity of the Cinchona culture belongs. The value of this C. Pahudiana was so strongly called in question, that the Indian Government, moved by the higher authorities, forbade by a decree of 11th Sept., 1862, its further extension." [It increased notwithstanding from 324,343 in 1862 to 909,155 in 1866.] "But whatever may be said of this now historical plant, it has shown that it can be useful in Pharmacy, and that its product can be sold for a considerable price in Europe. In alkaloidal contents it stands certainly near our other barks."

Inhalations of Bromine in Diphtheria and Croup—By Dr. Schutz.—The fact that diphtheritic membranes are more readily soluble in a solution of bromide of potassium than in lime water, or other substances usually employed in the treatment of diphtheria, induced the writer, some years ago, to adopt inhalations of bromine in the treatment of this disease. His success therewith has been so good that he again, in some recent numbers of the *Wiener Med. Wochenschrift*, urgently commends it to the notice of the profession. He advises the use of a solution of pure bromine and bromide of potassium, each three-tenths of a gramme, to water 150 grammes. A sponge is soaked in this solution, placed in a funnel of stiff paper and held over the nose and mouth for inhalation, just as is done with ether or chloroform, the inhalation being continued for five or ten minutes, and repeated every half hour or hour. The odor of bromine, as diluted, is very well borne even by infants. The preparation being highly volatile and decomposed by light, must be guarded accordingly.—*Kansas City Med. Jour., Aug.*, 1872, from *Allg. Med. Central-Zeitung*.

AMERICAN PHARMACEUTICAL ASSOCIATION.

NOTICE OF ANNUAL MEETING.

The 21st Annual Meeting of the American Pharmaceutical Assoc. will convene at Virginia Hall, in the City of Richmond, Va., on the 16th day of September (third Tuesday), 1873, at 3 o'clock, P. M. As this will be the first meeting held in the Southern States, it is earnestly desired that the different sections of our country may be fully represented, and thereby give evidence of its national character, and of a continued and growing interest in the Association. The city of Richmond is easy of access from all parts of the Union, and presents, with its vicinity, much of historic interest. An excursion to Petersburg, Fredericksburg, and Mount Vernon, is in contemplation. Details relating to the excursion, and to the hotel accommodations for the visiting members, have been announced by the Secretary. Pharmacists and others eligible for membership are invited to forward or present their names for election, and thereby aid in extending the usefulness of this Association. The necessary blanks can be obtained from the Permanent Secretary, Prof. John M. Maisch, 145 North Tenth street, Philadelphia, Pa.

The exhibition of objects relating to Pharmacy and the collateral sciences, has become a prominent and interesting feature of our annual meetings, and we hereby extend a cordial invitation to all who may have apparatus and specimens of interest, either of their own manufacture or of others, to send them, *pre-paid*, addressed to the American Pharmaceutical Association, at Virginia Hall, Richmond, Va.

ALBERT E. EBERT, *President.*

Chicago, July, 1873.

Pharmaceutical Colleges and Associations.

The Rhode Island State Board of Pharmacy, to serve three years from July 1, 1873, has been appointed as follows: Albert L. Calder, William B. Blanding, Ossian Sumner and Norman N. Mason, of Providence; Bela P. Clapp, of Pawtucket; Albert J. Congdon, of East Greenwich, and James H.

Taylor, of Newport. At a meeting of the Board for organization, Mr. Albert L. Calder was elected President, and Norman N. Mason, Secretary and Registrar for the full term of their appointment.

The New York College of Pharmacy, we are informed, will have to fill a vacancy in the Board of Pharmacy, occasioned by the resignation of Francis Weismann, M. D.

The New Jersey Pharmaceutical Association held its fourth summer meeting in the parlors of the Mansion House, at Long Branch, on Wednesday, August 13. Only about thirty members were present. Owing to breaks in railroads, caused by the severe storm, many were unable to attend. After reading the minutes of the previous meeting, the Legislative Committee presented a very full and satisfactory report, which was received and proper measures adopted to act upon the suggestions contained therein. The names of one member from each county were added to the Committee, and it is hoped that their efforts to secure the passage of the "Pharmacy bill" in the next Legislature will be successful.

The Standing Committee were instructed to prepare, and present to the next Legislature, an "Act of Incorporation," which shall include the privilege of establishing a College of Pharmacy in the State whenever the Association may deem it expedient. A resolution was unanimously adopted condemning the practice which too generally prevails of making bar-rooms of drug stores, and recommending druggists throughout the State not to allow any liquors to be drank in their stores under any pretext whatever.

A very interesting article, entitled "Wanted, a Competent Drug Clerk," selected from the *Druggist's Circular*, was read, and received the hearty approval of the Association.

An answer to a "query," concerning a "Formulary for Unofficinals," was then read, in which the writer strongly recommended that, inasmuch as "uniformity" was the great desideratum, the Association should not propound a formulary of its own, but adopt that which probably will soon be published by the American Association.

A Committee was appointed to make arrangements for the next annual meeting, and to procure specimens of drugs, new preparations, apparatus, etc., for exhibition. The Association then adjourned.

The next meeting will be held at Jersey City on the second Wednesday in February, 1874.

The National College of Pharmacy, at Washington, D. C., held its first annual meeting last month. Mr. W. S. Thompson occupied the chair and Mr. J. C. Fill Secretary.

Prof. Oldberg submitted an amendment to the constitution, changing the time for the annual meeting to the second Monday in April, instead of the first Monday in August. Also, an amendment to the by-laws, providing for rules of order. The amendments were adopted.

The President read his annual report.

After congratulating the College upon the success which has attended the

first year of its existence, he gives a history of the organization and the progress made up to this time. The College has a full supply of apparatus for illustrating the lectures on chemistry and pharmacy, and splendid specimens of materia medica. He recommends the change of the annual meeting in order to facilitate the course of lectures given annually by the College, and the raising of an additional sum of money to liquidate some debts. The amount subscribed for inaugurating the College was $1,565, of which there was collected $262·50; amount received from students, $240; new members, $24; total amount disbursed, $1,517. The estimated expense of the College for the coming year is $1,000. There are fifty-one members of the College. He states that the lectures are the legitimate object of the Association, and urges increased interest in procuring attendance. He alluded to the bill introduced in the last Legislative Assembly regulating the practice of pharmacy, which had not passed for want of time, but expressed the hope that it would be passed at the next session.

The following officers were elected: President, W. S. Thompson; First Vice-President, F. S. Gaither; Second Vice-President, John R. Major; Recording Secretary, John C. Fill; Corresponding Secretary, R. B. Ferguson; Treasurer. J. P. Milburn; Curator, Z. W. Cromwell; for additional trustees, J. D. O'Donnell, W. B. Entwisle, W. G. Duckett, George M. Howard and Rudolph Oldberg.

The code of ethics was amended, and the following delegates were appointed to attend the meeting of the American Pharmaceutical Association, to be held at Richmond: Prof. Oscar Oldberg, J. R. Major, F. S. Gaither, W. B. Entwisle and W. S. Thompson.

On motion, the President of the College was authorized to act as President of the Board of Trustees *ex officio*.

The Secretary was directed to send copies of the report of the President to the *American Journal of Pharmacy* and *Druggist's Circular* for publication.

The meeting then adjourned.

The Washington Pharmaceutical Association, we have been informed, is the title of an organization, principally composed of pharmaceutical assistants. Its object is the mutual improvement of its members and the interchange of knowledge pertaining to pharmacy. The Association will probably be represented at the Richmond meeting.

St. Louis College of Pharmacy.—We observe from the annual announcement that the qualifications for graduation are now the same as at the other Colleges. The faculty, in consequence of some resignations, has been constituted as follows: Theodore Fay, M. D., Professor of Chemistry; Otto A. Wall, M. D., Professor of Materia Medica, and Hubert Primm, Professor of Pharmacy.

California College of Pharmacy.—The inauguration exercises of the California College of Pharmacy took place on the evening of July 8th, 1873. The attendance was large—a gratifying proof that the friends of pharmaceutical progress are not few in this locality.

The opening address was delivered by Prof. D. C. Gilman, President of the University of California. Addresses were also delivered by Wm. T. Wenzell, President of the College of Pharmacy; Dr. R. Beverly Cole, J. G. Steele and Prof. Searby. The educational work of the College actually commenced upon Friday evening, July 11th, with a class of twenty-seven students. So large an attendance shows conclusively that the young pharmacists of California are fully alive to the importance of special and thorough education in their profession.

This College has affiliated with the University of California in conformity with the following sections of the "Organic Act" of the University of California:

"SECTION 8. The Board of Regents may affiliate with the University, and make an integral part of the same, and incorporate therewith any incorporated college of medicine or of law, or other special course of instruction now existing or which may hereafter be created, upon such terms as to the respective corporations may be deemed expedient; and such college or colleges thus affiliated shall retain the control of their own property, with their own Board of Trustees, and their own Faculties and Presidents of the same, respectively, and the students of those colleges, recommended by the respective Faculties thereof, shall receive from the University the degrees of those Colleges, *provided*, however, that the President of the University shall be, *ex officio*, a member of the Faculty of each and every college of the University, and President of such Faculty."

"SEC. 18. The immediate government and discipline of the several colleges shall be entrusted to their separate Faculties and the resident professors of the same, each of which shall have its own organization, regulate the affairs of its own college, etc, etc. * * * * * * * *

The agreement which has been entered into is as follows:

"In accordance with the Organic Act of the University of California, the California College of Pharmacy is hereby affiliated with the University, upon the following basis.

"The College will maintain its own Board of Trustees, and will continue to hold its own property as if this affiliation had not been agreed upon.

"The College will also appoint its own professors and establish its own course of instruction, subject to the general approbation of the Regents of the University.

"The University will confer the degree of Graduate in Pharmacy upon candidates recommended by the Board of Examiners of the College, and approved by a committee to be designated by the Regents.

"This agreement may be cancelled by mutual consent, at any time, or by the withdrawal of either party to it, after twelve months' notice to the other party."

The terms of affiliation, it appears from the above, are very liberal, and must be advantageous to the department of pharmacy, being thus placed under the patronage of the State, and retaining, at the same time, all the essential characteristics of the Colleges of Pharmacy of the older States, and particularly the most important of all, namely, the management of its affairs by professional pharmacists.

The four chairs in the College are filled as follows: Willard B. Rising, Chemistry; J. Winchell Forbes, Pharmacy; Wm. M. Searby, Materia Medica, and Herm. M. Behr, M.D., Botany.

The two-class system has been planned for three chairs somewhat similar to

the sketch published on page 523 of our last volumes; in the materia medica course no *division* is announced in the prospectus, a virtual admission, we take it, that a mere division of the courses as laid out by the older colleges is not equivalent to the adoption of a really progressive system of study.

We trust that the first college of pharmacy on the Pacific coast will meet with that good success to which the energy of its officers and members entitles it.

Pharmaceutical Society of Paris.—At the meeting held July 2d, M. Stan. Martin presiding, a letter was read from the President of the *Société de prévoyance* of the department of the Seine, calling attention to the advantages which would result from the practical examination of pharmaceutical students; several provincial associations have instituted such examinations, and the Paris Society is requested to establish them also for the department of the Seine. The subject was referred to a committee, consisting of MM. Boudet, Roucher, Mayet, Blondeau and Marais, for consideration and report.

M. Edme Bourgoin exhibited the results of his researches on the influence of heat upon succinate of silver; if this salt is mixed with about three times its weight of fine sand, and gradually heated in a retort to 180° C., vapors are disengaged continually above 100° C., condensing partly into an oily liquid, partly into crystals; the liquid is a solution of maleic acid slightly tinged by traces of empyreumatic products; the first portion of the sublimate consists likewise of maleic acid, the last portion of succinic acid (*Journ. de Pharm. et de Chim.*, 1873, Aug., 83)

M. Martin exhibited China and Tartary nutgalls, which M. H. Soubeiran stated are produced by *Aphis sinensis* upon *Dystilium racemosum;* within the galls several generations of female insects are produced, afterwards winged males and females copulating in the air, the females determining the growth of the galls by the deposition of their eggs.

M. Marais exhibited infusions of clove pink, peony and red poppy, made both with distilled and with common water; the latter are completely altered, while the former retain their agreeable aroma and color. M. Boudet remarked that M. Ward has demonstrated this long since, for tea, which yields a more agreeable infusion with much less tea, if distilled water is used. M. Méhu said that in preparing extracts distilled water only should be used.

Mr. Méhu presented specimens of ammonio-ferric citrate and tartrate, which he obtained of definite composition from the ferrous salt.*

M. Roucher expressed the belief that the ceresin presented lately by M. Grassi contains vegetable wax; he showed some paraffin obtained from ozokerite, which is a very different product; it exists in the mineral in the proportion of 55 per cent.

Editorial Department.

The Eastern Excursion Trip to Richmond to the meeting of the American Pharmaceutical Association has been altered to meet the wishes of many members desiring to spend together Sunday, Sept. 14. The excursion via York

* We shall refer again to M. Méhu's paper in our next number.—Ed. Am. Jour. Pharm.

River has been abandoned, and the following is substituted in its place: The party will leave Baltimore on Saturday, Sept. 13th, at 4 o'clock P.M., by Bay line steamers, arriving at Fort Monroe and Vue de l'Eau early Sunday morning. On Monday morning they will proceed to Richmond by James River steamers, arriving in that city about 5 P.M. After the final adjournment, it is proposed to journey to Washington via Richmond, Fredericksburg and Potomac Railroad, and to visit Mount Vernon on the way there.

Excursion tickets will be sold on the boat on Saturday and Monday (Sept. 15th), at $11. The tickets will be good by the way stated, from Baltimore to Richmond and back to Washington, D. C. Round trip tickets over the route as proposed above are issued from and back to New York at excursion rates ($22.30). The same excursion tickets (No. 203 of the Pennsylvania Railroad) will also be sold in Boston to accommodate the members from New England.

In all cases where baggage can be checked to Baltimore only, the excursionists with their baggage will be transferred free of charge from the connecting trains to the boat. Baggage checks must be handed, on the train, to the Bay line agent, or to the agent of the Union Transfer Company.

Special accommodations will be provided on the boat to the excursionists; all intending to participate should, therefore, report at once the number of berths required to Mr. J. F. Hancock, Baltimore.

American Medicated Pills at the Vienna Exposition.—The "Zeitschr. des allgem. öesterr. Apoth. Vereines" contains in its issue of July 10 a paper on this subject, from which we extract the following:

Among the articles on exhibition from the United States, belonging to Group III (chemical products), our attention is attracted by a collection of white and red globules, put up in elegant bottles of different shapes and dimensions. We would suppose them to be some dainties if they were not embraced in Group III, and on further examination we find here almost all medicinal substances of the United States in the form of pills. We requested the representatives of these firms for some details about the sugar-coated pills, as they are called, and learned that they are a necessity for the practical American, and that he supposes not to be able to exist without them. In case he is taken sick, he asks the physician, or a friend in whom he has confidence, what can be done against his ailment, and receives the advice to take some kind or other of pills. The patient buys them, and in case he gets well he will never again be without these pills; he will always carry them with him, and if unwell take a few of them.

We must, however, not forget that this is possible only in a country like America, where the largest portion of the physicians are charlatans, and where pharmacy may be practiced according to the notions of any individual.

But these pills must be looked upon as a decided progress in pharmacy, and if they would come into use with us, and be ordered by physicians, we believe that many a patient would overcome his disgust at the taking of disagreeable and nauseous medicines, and calmly swallow his pills in case of sickness. Consider, for instance, how disagreeable to take are the preparations of bromine, valerian, assafœtida, &c., and what difficulties the physician has to overcome to exhibit such medicines in as agreeable a form as possible, particularly to children. All this is avoided by these pills; but we favor them only when prescribed by the physician, for it cannot be denied that serious harm is done by the free sale of these pills, and several intentional or accidental cases of poisoning have occurred in America through the use of these pills. To convince

you of this, I here append formulas for several of these pills. [Follow formulas for Plummer's, Cook's, emmenagogue and compound calomel pills]. Such pills are prepared by most of the larger laboratories, and are here exhibited in two forms by two firms.

It is desirable to see in what light we are seen by others; but when a deliberate opinion is expressed upon such crude and vague notions as shown by Mr. R. Hildwein, the author of the above article, such opinions are deprived of nearly all the value they may otherwise possess, and cause merely a smile of compassion for the fertile imagination of their holder, and for the unreliable sources of such information, which we are sure will not be owned in the manner expressed here by the representatives of the two firms mentioned (W. R. Warner & Co. and McKesson & Robbins). The fling at the physicians of the United States is, to say the least, so ungenerous, that we wonder at its acceptance into the Austrian pharmaceutical journal.

To Correspondents.—As a general rule, we prefer to answer inquiries by letter, and not to notice them in the "Journal," unless the subject is deemed of sufficient interest to be laid before our readers. Reluctantly, only, we depart from this rule in such cases where the name and address has not been furnished.

One correspondent has received from an eminent physician of this city prescriptions calling for *Mist. Ammon. Muriat. comp.* and for *Tinct tonica*, and wants to obtain from us formulas for the two preparations. We know that some physicians have prescribed the compound tincture of cinchona and quassia, a formula for which will be found in Parrish's Pharmacy,* under the name of tonic tincture; but not knowing who the eminent physician is, we cannot ascertain from him whether this or some other tonic tincture was intended by him, and whether the formula for his compound mixture of sal ammoniac has ever been published.

Another correspondent desires us to publish a formula for elixir of calisaya, iron and bismuth. We refer him to the "American Journal of Pharmacy" for 1868, page 237, and to p. 310 of the volume for 1871.

A third correspondent describes his manipulations in preparing ointment of oxide of zinc, which are precisely like those published on page 68 of the present volume, except that melted lard is used where Mr Kalish uses sweet oil of almonds.

We are frequently in receipt of newspapers, sent for the purpose of calling our attention to some article or item of news contained in it. Being truly thankful for such courtesy, we would respectfully ask our correspondents not to omit the marking of the article specially intended for our eyes, as the time at our disposal does not permit us to read the sometimes voluminous papers sent, in order to discover what it may contain of special interest to us or the readers of the "Journal."

Incompatibles.—A great deal has been written upon this subject, and more extensive still is the experience of pharmacists, of the apparent disregard, on the part of physicians, of the laws of incompatibility. A correspondent thinks

*See, also, American Journal of Pharmacy, 1856, p. 18.

that this is due to the fact that few medical students pay due attention to the lecturer on chemistry. This may be the case, and, in our opinion, it would do no harm for medical students to go through a regular course of practical chemistry, as we conceive it to be conducive of superior qualifications, if the large majority of pharmaceutical students were to devote considerable of their time to systematic experiments in practical and analytical chemistry. Experience is by far the best teacher of manipulations and of scientific facts. Where this experience is wanting, tables of incompatibilities are often resorted to, to supply this deficient knowledge. These tables are often far too cumbersome, and, instead of enumerating what certain articles should *not* be combined with, the facts are often arrived at much better by stating the compounds with which they may be mixed without causing precipitates or decomposition. Thus, of nitrate of silver it may be said, that it can only be combined with nitrates and pure soluble chlorates; all the other officinal articles, whether organic or inorganic, will either cause a reduction or produce insoluble or sparingly soluble silver compounds.

It must, however, be remembered that certain combinations which are truly incompatible in a chemical sense, are, notwithstanding, largely employed in medicine, and that many compounds, insoluble in simple solvents, possess considerable medicinal activity. Acetate of lead is prescribed together with tannin or opium preparations, quinia with tannin, opium with astringents, sulphate of zinc with acetate of lead, &c., and many of such combinations, used internally as well as externally, have been sanctioned by high authorities and long usage. It is, therefore, not always possible for the pharmacist to determine whether the intention of a physician can be arrived at by following literally the directions of the prescription, and in all cases of novel combinations which are followed by decomposition, it is well to call the attention of the physician thereto; such care and attentiveness will always be appreciated by well-meaning practitioners.

We remember a physician who wanted a clear liquid when prescribing acetate of lead and sulphate of zinc. On explaining to him that either the sulphate of lead formed would have to be filtered out, or the acetate of zinc substituted for the sulphate, he at once directed the latter to be done.

Nitrate of siver dissolved in distilled water is often directed by physicians to be put up in dark colored vials. We have explained to several that the solution is not blackened by the influence of the light, but mainly in consequence of the contact with inorganic matter, such as dust, hair pencil, cork, volatile oil (if rose-water is directed), and the like. Many of these practitioners subsequently prescribed silver solution in ordinary glass-stoppered vials.

But it is useless to enumerate instances of this kind. We merely desire to draw attention to one of the prescriptions sent us, which appears to be written with such a glaring disregard of chemical laws, that the physician should have been consulted before it was dispensed. The prescription alluded to is as follows:

℞. Potass. Iod., ... ℥i,
Argenti Nitr., ... ℈i,
Aquæ, ... ℥iv. Mix.

Pharmaceutical Education in Indiana.—We have received a circular of Fort Wayne College, in which hereafter instruction in pharmacy will be given by Mr. H. V. Sweringen. This college is under the patronage of the North and North-West Indiana Conferences of the Methodist Episcopal Church, and is intended as an educational institution for both sexes. The circular does not state to what extent and in what manner pharmacy is to be taught; but from private information we learn that the course is intended as a preparatory one to those who purpose afterwards finishing their pharmaceutical education at a college of pharmacy, and as an aid and guide in their subsequent private studies to those who are not so fortunately situated as to be able to attend the lectures at a college of pharmacy. Similar classes have been formed in Rhode Island, Richmond, Va., and other places, and have met with success. We look with pleasure upon such courses, as a sure indication that the necessity of a more thorough education of pharmacists is being appreciated everywhere, and that the progress made in it of late is destined to become more apparent year after year.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Chemistry: General, Medical and Pharmaceutical, including the Chemistry of the U. S. Pharmacopœia. A Manual of the General Principles of the Science, and their Applications to Medicine and Pharmacy. By John Attfield, Ph.D., F.C.S., &c. Fifth edition, revised from the fourth (English) edition of the work by the author. Philadelphia: Henry C. Lea. 1873. 12mo, pp. 606.

We are truly gratified at the favor with which the first American edition of this work, published two years ago, has been received by the American student. An extensive experience with it as a text-book in the practical laboratory of the Philadelphia College of Pharmacy has even more fully convinced us of its utility and its value as a guide in the practical instruction in chemistry. The comprehensive character of the work has been faithfully adhered to in this new edition, in which the chemistry and nomenclature of the latest U. S. Pharmacopœia have received their full share of attention, increasing the size of the volume, with the new matter added to it, over fifty pages. We bespeak for this one the same favor that has been extended to the former edition, and, notwithstanding our views differ in some particulars from those of Professor Attfield, we expect to use the volume in our practical instructions with the same benefits to the students that has been afforded by the use of its precursor.

A Botanical Index to all the Medicinal Plants, Barks, Roots, Seeds and Flowers usually kept by Druggists, arranged in Alphabetical Order, with their Officinal and Common Names. By Allan Pollock, druggist. New edition, revised and enlarged. New York: Allan Pollock, 1873. 8vo, pp. 137.

This useful little work consists of two parts. The first part, occupying a little less than one-third, consists of an alphabetical list of the botanical names of officinal plants, with their common and local names in the adjoining column. The second part is arranged with the English names in alphabetical order,

having opposite to them the botanical names. In all cases where two or more synonyms are used for one plant, or where two or more plants are designated by one English name, the one which is recognized by the Pharmacopœia, or which is most widely recognized, is indicated by italics.

We have carefully examined both lists, and believe them to be entirely correct and reliable; we therefore recommend the book as an extremely useful one, to pharmacists and druggists generally. Although there may be but rare occasions for it, the typical arrangement is such that other names can be added in writing. Only in one instance have we observed an omission: Erigeron canadense, for which the author names, on page 18, not less than nine English names, should have three additional ones, which are used in Northern Ohio and in Michigan, namely, *horsetail*, *cowstail*, and *fireweed* (see Amer. Journ. of Pharmacy, 1870, p. 121).

A Cyclopædia of Quantitative Chemical Analysis. By Frank H. Storer, A.M., Professor of General and Analytical Chemistry in the Massachusetts Institute of Technology. Boston: John Allyn, publisher, 1873. Part II. 8vo. Price, $1.65.

The work is published in parts, each consisting of 112 pages, closely printed in double columns. We have before us Part II, containing the articles *carbonate of sodium* to *cyanide of silver*, and embracing such important articles like chlorine and the chlorides, cinchona, chromium, copper, &c. Each article is systematically treated according to the uses to which it is put in quantitative analysis, and the various methods proposed are fully described, together with all the precautions requisite for the successful performance of the process. Its unique arrangement renders it very convenient for use, and, as far as can be judged from the part before us, the professional analyst, as well as the laboratory student, will hardly ever refer to its pages without finding the results of modern chemical investigations that are likely to prove useful for analytical purposes.

The Medical Register and Directory of the United States. By Jos. M. Toner, M.D., and S. W. Butler, M.D. Philadelphia: S. W. Butler, 1873. 8vo.

The advance sheets received by us indicate that the object in publishing this work is to present a correct record of the names, address and educational status of the physicians; also lists of the medical societies, colleges, hospitals and other medical institutions; abstracts of the medical laws of each State, and brief notices of the mineral springs and other health resorts of the United States. The work will doubtless be a very interesting one, and physicians should not fail to give to the editors all the necessary information.

Geo. P. Rowell & Co.'s American Newspaper Directory, containing accurate Lists of all the Newspapers and Periodicals in the United States and Territories, and the Dominion of Canada and British Colonies of North America. New York: Geo. P. Rowell & Co., publishers, 1873. 8vo, pp. 608.

The directory is preceded by a very interesting sketch of the growth of journalism in the United States, from which we take a few figures, which we think will be of interest to our readers. The number of newspapers and periodicals

published in the United States in 1870 was 5871; in all other parts of the world it has been estimated at 7642 in the same year. The yearly issue of all periodicals amounted in 1870 in the United States to 1,508,548,250 copies, averaging nearly forty copies to every inhabitant, young and old. There are seven papers which have lived over one hundred years, and forty have reached the mature age of fifty years and more. In 1871 the post-office deparment of the United States delivered 32,610,553 newspapers; yet this department performs but a small part of the service of newspaper delivery.

Braithwaite's Retrospect of Practical Medicine and Surgery. Part LXVII. July. Uniform American edition. New York: W. A. Townsend, publisher, 1873. 8vo, pp. 295. Price, $1.50 a part, or $2.50 a year.

The Half-Yearly Abstract of the Medical Sciences: being a Digest of British and Continental Medicine, and of the Progress of Medicine and the Collateral Sciences. Edited by Wm. D. Stone, M.D., F.R.C.S. Vol. LVII. July, 1873. Philadelphia: Henry C. Lea. 8vo, pp. 295. Price, single volumes $1.50, or $2 50 per annum.

Half-Yearly Compendium of Medical Science. Part XII. July, 1873. Philadelphia: S. W. Butler, M.D. 8vo, pp. 280. Price, single numbers $2.00, or $3 per annum.

The above three half-yearly periodicals contain pretty complete abstracts of most of the important papers bearing on medicine and the collateral sciences.

Unofficinal Formulæ Published by the Maryland College of Pharmacy for the Use of its Membership and Physicians. With the Code of Ethics, List of Members and Faculty of College. Second edition. Collected and revised by a Committee. Baltimore, 1873. 8vo, pp. 43.

Report of the State Board of Pharmacy (of Rhode Island) made to the General Assembly. 1873. Providence. 8vo, 8 pages.

Report on the New or Fifth Decennial Revision of the United States Pharmacopœia to the Medical Society of the State of New York. By E. R. Squibb, M.D. Reprinted from the New York Medical Journal, April, 1873. New York: D. Appleton & Co. 8vo. 25 pages.

Proceedings of the Third Annual Meeting of the Mississippi State Pharmaceutical Association, held at Vicksburg April 2d.

On Strictures of the Urethra. Results of Operation with the Dilating Urethrotome, with Cases. By F. N. Otis, M.D., Clinical Professor, &c. Reprinted from the N. Y. Medical Journal, March, 1873. New York: D. Appleton & Co. 8vo, 20 pages.

Ergot in the Treatment of Nervous Diseases. By D. H. Kitchen, M.D., &c. From the American Journal of Insanity, July, 1873. 8vo, 16 pages.

Thirteenth Annual Report of the Managers of the State Lunatic Asylum, Utica, N. Y., for the Year 1872. Transmitted to the Legislature March 20, 1873. Albany, 1873. 8vo, 96 pages.

Fifth Annual Report of the Pennsylvania Society for the Prevention of Cruelty to Animals. Philadelphia, 1873. 8vo, 32 pages.

Geological Survey of Pennsylvania. Report to Governor Hartranft. By P. Lesley. 8vo, 12 pages.

Cincinnati Industrial Exposition of Manufactures, Products and the Arts. Rules and Premium List of the Fourth Exposition, 1873. Cincinnati, 1873. 8vo, 52 pages.

The reception of the above pamphlets is hereby acknowledged.

OBITUARY.

Elias Durand, Pharmacist and Botanist, died August 14, in the 80th year of his age. Mr. Durand was born at Mayenne, France, on the 25th of January, 1794. In 1808 he commenced the study of pharmacy, and in 1812 attended lectures in Paris. He became an aid in the Pharmaceutical Department of the army in 1813, and served with the Fifth Corps at the battles of Lützen Bautzen, Hanau, Katzbach and Leipsic. Upon the downfall of Napoleon, Mr. Durand left France, and arrived at New York on the 1st of July, 1816. After a few months he removed to Philadelphia, where he took charge of a chemical laboratory at Broad and Race streets.

In preparing mercurial salts his health was injured, and he then removed to Baltimore, where he obtained the position of chief clerk in a drug store. In 1825 he returned to Philadelphia and opened a drug store at the southwest corner of Sixth and Chestnut streets. While he kept the store it was the resort of the leading physicians and chemists of the city. Mr. Durand contributed a number of papers to the earlier volumes of the *American Journal of Pharmacy*, and also devoted his attention to the study of botany. He was well acquainted with the flora of North America, and gathered an herbarium of about ten thousand species of plants, which he presented to the Museum of the Jardin des Plantes of Paris in 1868.

He wrote memoirs of Professor Nuttall, the botanist, Dr. Kane, the arctic explorer, and André Michaux, the botanical explorer, who bequeathed a large sum of money for the purpose of establishing the park of American forest trees, now well known as the Michaux Grove, in Fairmount Park, Philadelphia. He also wrote descriptions of the plants collected in California by Lieutenant R. S. Williamson, in California and Nevada by Mr. Pratten, and in the arctic regions by Dr. Kane, and contributed to the Linnean Society of Bordeaux, France, an exhaustive paper on the vines and wines of North America. He was a member and one of the curators of the American Philosophical Society, a member of the Academy of Natural Sciences, and an honorary member of the Philadelphia College of Pharmacy, the Société de Pharmacie de Paris, the American Pharmaceutical Association, the Société d'Acclimatation de Paris, Société Linnéen de Bordeaux, the Buffalo Society of Natural Sciences, the Linnean Society of Lancaster, and other foreign scientific societies. He was also a member of the French Benevolent Society of this city, and was always active in promoting the welfare of his compatriots and in serving the cause of science.

Bradford Ritter died on the 11th of August, while bathing near the Old York Station, in Montgomery county, Pa. He was born November 20th, 1828. In 1852 he graduated at the Philadelphia College of Pharmacy, and commenced the apothecary business at the northeast corner of Thirteenth and Walnut streets, and afterwards a wholesale drug store at the corner of Front and Market streets. At the time of his death he was connected with Powers and Weightman's chemical works. The *American Journal of Pharmacy* for 1855, page 500, contains from his pen a short paper on Cream Syrups.